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SEARCH REQUEST FORM

Scientific and Technical Information Center

Requester's Full Name: Lynda Guo Examiner #: 79756 Date: 08/28/02
Art Unit: 1627 Phone Number 30-605-1200 Serial Number: 09/682,517
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If more than one search is submitted, please prioritize searches in order of need.

****

Please provide a detailed statement of the search topic, and describe as specifically as possible the subject matter to be searched. Include the elected species or structures, keywords, synonyms, acronyms, and registry numbers, and combine with the concept or utility of the invention. Define any terms that may have a special meaning. Give examples or relevant citations, authors, etc, if known. Please attach a copy of the cover sheet, pertinent claims, and abstract.

Title of Invention: Method for identifying inhibitors of dual substrate enzyme

Inventors (please provide full names): Heidi Sue Dodson, James Scott Marks, Thomas John McQuade, Maxine Fico Santoro, Nicholas Santoro

Earliest Priority Filing Date: 09/13/2001

**For Sequence Searches Only* Please include all pertinent information (parent, child, divisional, or issued patent numbers) along with the appropriate serial number.*

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FILE 'HCAPLUS' ENTERED AT 07:44:12 ON 12 SEP 2002

FILE COVERS 1907 - 12 Sep 2002 VOL 137 ISS 11
FILE LAST UPDATED: 11 Sep 2002 (20020911/ED)

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L80 ANSWER 1 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **2002:616268** HCAPLUS
DN **137:137268**
TI Photochemical amplified immunoassay
IN Bystryak, Seymon; Muehleman, Michael; Slor, Hanoch
PA Can.
SO U.S. Pat. Appl. Publ., 5 pp.
CODEN: USXXCO
DT Patent
LA English
IC ICM G01N033-53
ICS G01N033-537; G01N033-543
NCL 435007920
CC **9-10** (**Biochemical Methods**)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2002110842	A1	20020815	US 2001-784572	20010215

AB The invention concerns an assay for the detn. of an analyte in an aq. sample includes the steps of binding a first entity having an affinity for the analyte to a solid support. The first entity is bonded with the analyte to form a first complex. The first complex is reacted with a second entity to produce a second complex that is **tagged** with an **enzyme**. The second complex is combined with a **substrate** wherein a third complex is formed. An amplification reagent is added. The sample is **irradiated** with photonic energy, whereby the combination of the amplification reagent and the photonic energy provides **catalysis** for the further prodn. of the third complex. The absorbance (OD) of the sample is then measured.
ST immunoassay detergent antibody complex **enzyme catalysis** optical density ELISA
IT Immunoassay
(**enzyme**-linked immunosorbent assay; photochem. amplified

immunoassay)
IT Buffers
(phosphate/citrate; photochem. amplified immunoassay)
IT Absorptivity
Catalysis
Concentration (condition)
Detergents
Immunoassay
Radiation
Test kits
pH
(photochem. amplified immunoassay)
IT Antigens
RL: ANT (Analyte); ANST (Analytical study)
(photochem. amplified immunoassay)
IT **Enzymes, uses**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(photochem. amplified immunoassay)
IT Antibodies
RL: ARG (Analytical reagent use); PRP (Properties); ANST (Analytical study); USES (Uses)
(photochem. amplified immunoassay)
IT Energy
(photonic; photochem. amplified immunoassay)
IT 9003-99-0, Peroxidase
RL: CAT (Catalyst use); NUU (Other use, unclassified); USES (Uses)
(horseradish; photochem. amplified immunoassay)
IT 7722-84-1, Hydrogen peroxide, uses 9002-93-1, Triton X-100
RL: NUU (Other use, unclassified); USES (Uses)
(photochem. amplified immunoassay)
IT 95-54-5, 1,2-Benzenediamine, reactions 655-86-7, 2,3-Diamino-phenazine
RL: NUU (Other use, unclassified); RCT (Reactant); RACT (Reactant or reagent); USES (Uses)
(photochem. amplified immunoassay)

L80 ANSWER 2 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **2002:531767** HCAPLUS
TI Simultaneous Multiple **Substrate Tag** Detection with ESI-Ion Trap MS for In Vivo Bacterial **Enzyme** Activity Profiling
AU Basile, Franco; Ferrer, Imma; Furlong, Edward T.; Voorhees, Kent J.
CS Department of Chemistry, Colorado School of Mines, Golden, CO, 80401, USA
SO Analytical Chemistry (2002), 74(16), 4290-4293
CODEN: ANCHAM; ISSN: 0003-2700
PB American Chemical Society
DT Journal
LA English
CC **9** (**Biochemical Methods**)
AB A bacterial identification method in which multiple **enzyme** activities are measured simultaneously and in vivo with electrospray ionization-mass spectrometry (ESI-MS) is described. Whole-cell bacteria are immobilized onto a **filter** support and incubated with a mixt. of **substrates**. Each **substrate** is chosen to measure a specific **enzyme** activity of a targeted bacterium and to produce a **tag** of unique mol. wt. After a predetd. incubation time, the soln. is **filtered**, and the supernatant consisting of a mixt. of released **tags** and unhydrolyzed **substrates** is directly analyzed, without chromatog. sepn., by ESI-MS. Bacteria remain viable on the **filter** for further analyses. The method was tested by measuring the aminopeptidase activity of the bacteria Escherichia coli, Bacillus subtilis, Bacillus cereus, and Pseudomonas aeruginosa. The resulting aminopeptidase **enzyme** profiles allowed the differentiation between the four bacteria tested. The method is rapid, since a multiplex advantage is realized when assaying for multiple

enzymes, and it is amenable to automation via a flow injection anal. setup.

RE.CNT 8 THERE ARE 8 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

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(2) Chavez, R; No publication given 1996, P725
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L80 ANSWER 3 OF 32 HCAPLUS COPYRIGHT 2002 ACS

AN **2001:763492** HCAPLUS

DN **135:315574**

TI Methods for the detection of modified **peptides, proteins** and other molecules

IN Volinia, Stefano

PA Italy

SO U.S. Pat. Appl. Publ., 36 pp.
CODEN: USXXCO

DT Patent

LA English

IC ICM C12Q001-68

NCL 435006000

CC **9-2** (**Biochemical Methods**)
Section cross-reference(s): **7**

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 2001031469	A1	20011018	US 2001-753114	20010102
PRAI	US 2000-174171P	P	20000103		

AB A method is described for the mol. anal. of complex samples, including biopsies from cancer and other multifactorial diseases. The method uses arrays of **proteins** and **enzymes substrates**, including **peptides**, antibodies, non **peptide substrates** and phospho-**protein** and acetyl-**protein** traps. In an embodiment, **tagged substrates** are mass reacted in soln. with the sample under investigation and then sorted onto a solid surface array by means of the relative **tags**. In another embodiment the **substrates** are immobilized onto a solid surface prior to sample anal.

ST **enzyme peptide protein** mol detection array; modified **peptide** detection array

IT **Proteins**, specific or class
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(14-3-3, fusion **proteins** with GST, as **tagged substrates**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Molecular cloning
(GST fusion **proteins**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Proteins**, specific or class
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(Grb-2, fusion **proteins** with GST, as **tagged substrates**; methods for detection of modified **peptides**

and **proteins** and other mols.)

IT Phosphoproteins
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(P190bcr-c-abl, **substrates** for, as control; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Protein** motifs
(PTB (phosphotyrosine-binding domain), on Shc; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Proteins**, specific or class
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(Pin1, fusion **proteins** with GST, as **tagged substrates**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Transcription factors
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(Rb; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Protein** motifs
(SH2 domain, fusion **proteins** with GST, as **tagged substrates**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Phosphoproteins
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(SHC, fusion **proteins** with GST, as **tagged substrates**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Proteins**, specific or class
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(acetylated; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Peptides**, analysis
RL: AMX (Analytical matrix); PRP (Properties); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)
(acetyllysine-contg.; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Peptide** library
(acetyllysine; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Fluorescent** substances
(as **labels**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Fusion **proteins** (chimeric **proteins**)
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(as **tagged substrates**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Nucleic acids
Peptide nucleic acids
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(as **tags**; methods for detection of modified **peptides**

and **proteins** and other mols.)

IT **Protein** motifs
(binding domains; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Protein** motifs
(bromodomain; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Prognosis
(cancer; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Samples .
(complex; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Algorithm
(data mining; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Neoplasm
(diagnosis; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Proteins**, specific or class
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(gene c-src, **substrates** for, as control; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Phosphoproteins
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(gene fyn, SH2, fusion **proteins** with GST, as **tagged substrates**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Phosphoproteins
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(gene vav, GST fusion **proteins**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Immunoassay
(immunoblotting; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Immobilization, biochemical
(in array; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Neoplasm
(metastasis; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Biochemical molecules
Fluorometry
Molecular association
Neoplasm
Nucleic acid hybridization
(methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Enzymes, analysis**
RL: ANT (Analyte); ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(methods for detection of modified **peptides** and

proteins and other mols.)

IT **Peptides**, analysis
Proteins, general, analysis
RL: ANT (Analyte); ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(methods for detection of modified **peptides** and **proteins** and other mols.)

IT p53 (**protein**)
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(methods for detection of modified **peptides** and **proteins** and other mols.)

IT Antibodies
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(methods for detection of modified **peptides** and **proteins** and other mols.)

IT Phosphoproteins
RL: ARG (Analytical reagent use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(methods for detection of modified **peptides** and **proteins** and other mols.)

IT Analytical apparatus
Microanalysis
(microarray; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Proteins**, specific or class
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(modified; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Antibodies
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(monoclonal; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Disease, animal
(multifactorial; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Lymph node
(neoplasm, metastasis; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **Proteins**, specific or class
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(p85, fusion **proteins** with GST, as **tagged substrates**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Phosphopeptides
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(phosphotyrosine-contg.; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Phosphorylation, biological
(**protein**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT Platelet-derived growth factor receptors
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(.alpha., **substrates** for, as control; methods for detection

of modified **peptides** and **proteins** and other mols.)

IT 407-41-0 1114-81-4
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(antibody to; methods for detection of modified **peptides** and **proteins** and other mols.)

IT 367980-72-1D, immobilized 367980-73-2D, immobilized 367980-74-3D, immobilized 367980-75-4D, immobilized 367980-76-5D, immobilized 367980-77-6D, immobilized 367980-78-7D, immobilized 367980-79-8D, immobilized 367980-80-1D, immobilized 367980-81-2D, immobilized 367980-82-3D, immobilized 367980-83-4D, immobilized 367980-84-5D, immobilized 367980-85-6D, immobilized 367980-86-7D, immobilized 367980-87-8D, immobilized 367980-88-9D, immobilized 367980-89-0D, immobilized
RL: ARG (Analytical reagent use); PRP (Properties); ANST (Analytical study); USES (Uses)
(as hybridizing **tag**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT 50812-37-8DP, Glutathione S-**transferase**, fusion **proteins**
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(as **tagged substrates**; methods for detection of modified **peptides** and **proteins** and other mols.)

IT 115926-52-8, Phosphatidylinositol 3-**kinase**
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(isoforms, **substrates** for, as control; methods for detection of modified **peptides** and **proteins** and other mols.)

IT 21820-51-9P, Phosphotyrosine
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(methods for detection of modified **peptides** and **proteins** and other mols.)

IT 162924-15-4D, conjugates with oligonucleotide complementary to **tag** in array 367451-88-5D, conjugates with oligonucleotide complementary to **tag** in array 367451-89-6D, conjugates with oligonucleotide complementary to **tag** in array 367451-90-9D, conjugates with oligonucleotide complementary to **tag** in array 367451-91-0D, conjugates with oligonucleotide complementary to **tag** in array 367451-92-1D, conjugates with oligonucleotide complementary to **tag** in array 367451-93-2D, conjugates with oligonucleotide complementary to **tag** in array 367451-94-3D, conjugates with oligonucleotide complementary to **tag** in array 367451-95-4D, conjugates with oligonucleotide complementary to **tag** in array 367451-96-5D, conjugates with oligonucleotide complementary to **tag** in array 367451-97-6D, conjugates with oligonucleotide complementary to **tag** in array
RL: ARG (Analytical reagent use); PRP (Properties); ANST (Analytical study); USES (Uses)
(methods for detection of modified **peptides** and **proteins** and other mols.)

IT 162924-14-3P 162924-15-4P 367451-80-7P 367451-81-8P 367451-82-9P 367451-83-0P 367451-84-1P 367451-85-2P 367451-86-3P 367451-87-4P 367451-88-5P 367451-89-6P 367451-90-9P 367451-91-0P 367451-92-1P 367451-93-2P 367451-94-3P 367451-95-4P 367451-96-5P 367451-97-6P
RL: ARG (Analytical reagent use); PRP (Properties); RCT (Reactant); SPN

(Synthetic preparation); ANST (Analytical study); PREP (Preparation); RACT (Reactant or reagent); USES (Uses)
(methods for detection of modified **peptides** and **proteins** and other mols.)

IT 367451-98-7D, fusion **peptides** 367451-99-8D, fusion **peptides** 367452-00-4D, fusion **peptides** 367452-01-5D, fusion **peptides** 367452-02-6D, fusion **peptides** 367452-03-7 367452-04-8
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); THU (Therapeutic use); BIOL (Biological study); PROC (Process); USES (Uses)
(methods for detection of modified **peptides** and **proteins** and other mols.)

IT 1892-57-5, 1-Ethyl-3-(3-dimethylaminopropyl)carbodiimide 6066-82-6, N-Hydroxysuccinimide
RL: RCT (Reactant); RACT (Reactant or reagent)
(methods for detection of modified **peptides** and **proteins** and other mols.)

IT 1946-82-3
RL: AMX (Analytical matrix); PRP (Properties); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent)
(**peptides** contg.; methods for detection of modified **peptides** and **proteins** and other mols.)

IT **141436-78-4, Protein kinase** C
RL: ARU (Analytical role, unclassified); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(**substrates** for, as control; methods for detection of modified **peptides** and **proteins** and other mols.)

IT 367632-32-4 367632-33-5 367632-34-6 367632-35-7 367632-36-8 367632-37-9 367632-38-0 367632-39-1 367632-40-4 367632-41-5
RL: PRP (Properties)
(unclaimed sequence; methods for the detection of modified **peptides, proteins** and other mols.)

L80 ANSWER 4 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **2001:629604** HCAPLUS
DN **135:300444**
TI **Substrate** recognition mechanism of thermophilic **dual-substrate enzyme**
AU Ura, Hideaki; Nakai, Tadashi; Kawaguchi, Shin-Ichi; Miyahara, Ikuko; Hirotsu, Ken; Kuramitsu, Seiki
CS Department of Biology, Graduate School of Science, Osaka University, Osaka, 560-0043, Japan
SO Journal of Biochemistry (Tokyo, Japan) (2001), 130(1), 89-98
CODEN: JOBIAO; ISSN: 0021-924X
PB Japanese Biochemical Society
DT Journal
LA English
CC 7-5 (**Enzymes**)
Section cross-reference(s): 75
AB Aspartate aminotransferase from an extremely thermophilic bacterium, Thermus thermophilus HB8 (ttAspAT), has been believed to be specific for an acidic **substrate**. However, stepwise introduction of mutations in the active-site residues finally changed its **substrate** specificity to that of a **dual-substrate enzyme**. The final mutant, [S15D, T17V, K109S, S292R] ttAspAT, is active toward both acidic and hydrophobic **substrates**. During the course of stepwise mutation, the activities toward acidic and hydrophobic **substrates** changed independently. The introduction of a mobile Arg292* residue into ttAspAT was the key step in the change to a **"dual-substrate enzyme"**. The **substrate** recognition mechanism of this

thermostable "**dual-substrate**" **enzyme** was confirmed by x-ray crystallog. This work together with previous studies on various **enzymes** suggest that this unique "**dual-substrate** recognition" mechanism is a feature of not only aminotransferases but also other **enzymes**.

ST aspartate aminotransferase crystal structure conformation **substrate** recognition

IT Conformation
(**protein**; **substrate** recognition mechanism of thermophilic **dual-substrate enzyme**)

IT Crystal structure
Enzyme functional sites
Thermus thermophilus
(**substrate** recognition mechanism of thermophilic **dual-substrate enzyme**)

IT 9000-97-9, Aspartate aminotransferase
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(**substrate** recognition mechanism of thermophilic **dual-substrate enzyme**)

RE.CNT 49 THERE ARE 49 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L80 ANSWER 5 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **2001:265716** HCAPLUS
DN **134:277600**
TI Non-separation heterogeneous assay for biological substances
IN Gan, Zhibo
PA Can.
SO PCT Int. Appl., 17 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N033-543
ICS G01N033-542; C12Q001-68; C12Q001-34
CC **9-2** (**Biochemical Methods**)
Section cross-reference(s): 3, **7**, 15

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001025788	A1	20010412	WO 2000-CA1153	20001003

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

PRAI CA 1999-2286414 A 19991004

AB This present invention is for a method referred to as non-sepn. heterogeneous assay that greatly simplifies the detection, identification, measurement of concn. and activity of biol. substances. It is based on the change of the **label** signal due to the distribution of the **label** between a solid surface and liq. in a vessel after completion of the reaction among reactants. The method involves the coating of a reactant (**labeled** or **unlabeled**) onto a surface, addn. of a sample with or without a competitor **labeled** using a **label tag** or **unlabeled**. The change of the **label** signal can be directly measured. The detection of DNA hybridization, a competitive **fluorescent** immunoassay, and a **fluorescent** assay for protease and protease inhibitor are described.

ST heterogeneous competitive assay biol substance surface **label**; DNA hybridization heterogeneous assay; **fluorescence** immunoassay competitive heterogeneous assay; protease inhibitor **fluorescent** heterogeneous assay

IT Nucleic acid hybridization
(DNA-DNA; non-sepn. heterogeneous assay for biol. substances)

IT **Color** formers
Fluorescent substances
Luminescent substances
(as **labels**; non-sepn. heterogeneous assay for biol. substances)

IT Analysis
(biochem.; non-sepn. heterogeneous assay for biol. substances)
IT Materials
(biochems.; non-sepn. heterogeneous assay for biol. substances)
IT **Enzymes, biological studies**
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(conjugates; non-sepn. heterogeneous assay for biol. substances)
IT Carbohydrates, reactions
Oligomers
Oligonucleotides
Oligosaccharides, reactions
Peptides, reactions
Polymers, reactions
Polyoxyalkylenes, reactions
Proteins, general, reactions
RNA
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(**enzyme substrates**; non-sepn. heterogeneous assay for biol. substances)
IT Immunoassay
(**fluorescence**; non-sepn. heterogeneous assay for biol. substances)
IT Antibodies
DNA
Enzymes, biological studies
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(immobilized; non-sepn. heterogeneous assay for biol. substances)
IT Caseins, reactions
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(**labeled** with **fluorescent** substance and immobilized, for **fluorescent** assay for protease and protease inhibitor; non-sepn. heterogeneous assay for biol. substances)
IT Antibodies
DNA
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**labeled**; non-sepn. heterogeneous assay for biol. substances)
IT Fluorometry
(non-sepn. heterogeneous assay for biol. substances)
IT Agglutinins and Lectins
Antigens
Ligands
Receptors
RL: ANT (Analyte); ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(non-sepn. heterogeneous assay for biol. substances)
IT DNA
RL: ANT (Analyte); ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); RCT (Reactant); ANST (Analytical study); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(non-sepn. heterogeneous assay for biol. substances)
IT Antibodies
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC

(Process)
(non-sepn. heterogeneous assay for biol. substances)

IT **Enzymes, analysis**
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(or **enzyme** inhibitor; non-sepn. heterogeneous assay for biol. substances)

IT 25322-68-3, Polyethylene glycol
RL: ARG (Analytical reagent use); RCT (Reactant); ANST (Analytical study); RACT (Reactant or reagent); USES (Uses)
(**enzyme substrates**; non-sepn. heterogeneous assay for biol. substances)

IT 9001-92-7, Protease
RL: ANT (Analyte); ARG (Analytical reagent use); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(non-sepn. heterogeneous assay for biol. substances)

IT 9001-99-4, RNase 9003-98-9, DNase 9031-96-3, Peptidase 9032-92-2, Glycosidase 56379-58-9, Oligosaccharidase
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(non-sepn. heterogeneous assay for biol. substances)

IT 9027-41-2, Hydrolase 37205-61-1, Protease inhibitor
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(non-sepn. heterogeneous assay for biol. substances)

RE.CNT 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L80 ANSWER 6 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **2001:78554** HCAPLUS
DN **134:128210**
TI Homogeneous **fluorescence** method for assaying structural modifications of biomolecules using **double-labeled substrates**
IN Blumenthal, Donald K., II
PA University of Utah Research Foundation, USA
SO PCT Int. Appl., 35 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q
CC **9-5** (Biochemical Methods)
Section cross-reference(s): 1, 6, **7**

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001007638	A2	20010201	WO 2000-US40495	20000727
	WO 2001007638	A3	20010816		

W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CR, CU, CZ, DE, DK, DM, DZ, EE, ES, FI, GB, GD, GE, GH, GM, HR,

HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT,
LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU,
SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN,
YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,
CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

AU 2000076271 A5 20010213 AU 2000-76271 20000727
EP 1206699 A2 20020522 EP 2000-965572 20000727
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
IE, SI, LT, LV, FI, RO, MK, CY, AL

PRAI US 1999-145755P P 19990727
WO 2000-US40495 W 20000727

AB **Double-labeled protein** biomol. **substrates** and methods for the homogeneous assay of processes by which biomols. are covalently modified are described. The methods of the present invention utilize biomol. **substrates labeled** at two positions with two **fluorescent** dyes or with a **fluorescent** dye and a **nonfluorescent** dye. The two **labeling** dyes of the unmodified biomol. **substrates** stack, thereby quenching the **substrate**'s **fluorescence**. Upon covalent modification of the **double-labeled substrate**, however, the intramolecularly stacked dyes dissoc. and the **fluorescence** of the phosphorylated **substrate** changes markedly. Methods utilizing the **double-labeled substrates** of the present invention do not require phys. sepn. of modified and unmodified **substrate** mols., nor do they require other special reagents or **radioactive** materials. Methods for prepg. and characterizing the **substrates** used in the assay procedure are described, as are methods utilizing the **substrates** of the present invention for high-throughput screening, for monitoring intracellular processes of covalent biomol. modification in living cells, for diagnostic and therapeutic applications for diseases involving dysfunctional processes of covalent biomol. modification, and for discovering novel **enzymic substrates**. A synthetic KID peptide was prepd. and **double-labeled** with tetramethylrhodamine-5-maleimide and 5-**carboxyfluorescein**, succinimidyl ester or 5-carboxytetramethylrhodamine, succinimidyl ester. These **substrates** can be used to assay for **protein kinase** A as the phosphorylated **substrates** have detectable changes in the absorbance and **fluorescence** characteristics of the dyes included in the **substrates**.

ST homogeneous **fluorescence** biomol modification assay; **protein** phosphorylation assay **labeled kinase substrate**; KID peptide **labeled** tetramethylrhodamine **fluorescein** PKA assay

IT Transcription factors
RL: PEP (Physical, engineering or chemical process); PRP (Properties); RCT (Reactant); PROC (Process); RACT (Reactant or reagent)
(CREB (cAMP-responsive element-binding), **double-labeled** kinase-inducible domain (KID) of; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT **Protein** motifs
(KID domain, conjugates with **fluorescent** dyes; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT Cyanine dyes
(conjugates with biomol. **substrates**; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT Biopolymers
Peptides, reactions

RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); RCT (Reactant); ANST (Analytical study); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(conjugates with **fluorescent** dyes; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT Lipids, reactions
Nucleic acids
Proteins, specific or class
Receptors
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); RCT (Reactant); ANST (Analytical study); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(conjugates, with **fluorescent** dyes; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT **Enzymes, biological studies**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(discovering new **substrates** for; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT **Proteins**, specific or class
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); RCT (Reactant); ANST (Analytical study); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(green **fluorescent**, conjugates with biomol. **substrates**; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT Biochemical molecules
Cell
Combinatorial library
Diagnosis
Disease, animal
Drug screening
Fluorescence
Fluorescence quenching
Fluorescent dyes
Fluorometry
Nucleic acid library
Phosphorylation, biological
Spectroscopy
Test kits
(homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT Nucleic acids
Proteins, general, reactions
RL: RCT (Reactant); RACT (Reactant or reagent)
(identification of **enzymes** modifying; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT **Proteins**, specific or class
RL: BPR (Biological process); BSU (Biological study, unclassified); PEP (Physical, engineering or chemical process); RCT (Reactant); BIOL (Biological study); PROC (Process); RACT (Reactant or reagent)
(**labeled**, with two assocg. **fluorescent** dyes; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT **Proteins**, specific or class
RL: ANT (Analyte); BPR (Biological process); BSU (Biological study,

unclassified); PEP (Physical, engineering or chemical process); ANST (Analytical study); BIOL (Biological study); PROC (Process)
(modified; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT Phosphorylation, biological
(protein; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT Dyes
(quenching **fluorescent** dyes; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT Glycoconjugates
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); RCT (Reactant); ANST (Analytical study); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(with **fluorescent** dyes; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT **Proteins**, specific or class
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); RCT (Reactant); ANST (Analytical study); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(yellow **fluorescent** proteins, conjugates with biomol. **substrates**; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT 321993-65-1P
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(amino acid sequence, prepn. and **double labeling** of; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT **142008-29-5, Protein kinase** A
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT 69-72-7D, conjugates with biomol. **substrates** 81-88-9D, conjugates with biomol. **substrates** 91-20-3D, Naphthalene, conjugates with biomol. **substrates** 91-64-5D, Coumarin, conjugates with biomol. **substrates** 118-92-3D, Anthranilic acid, conjugates with biomol. **substrates** 120-12-7D, Anthracene, conjugates with biomol. **substrates**, reactions 129-00-0D, Pyrene, conjugates with biomol. **substrates**, reactions 260-94-6D, Acridine, conjugates with biomol. **substrates** 271-89-6D, Benzofuran, conjugates with biomol. **substrates** 273-09-6D, 2,1,3-Benzoxadiazole, conjugates with biomol. **substrates** 1321-11-5D, Aminobenzoic acid, conjugates with biomol. **substrates** 2321-07-5D, **Fluorescein**, conjugates with biomol. **substrates** 3086-44-0D, Rhodol, conjugates with biomol. **substrates** 3682-14-2D, Isoluminol, conjugates with biomol. **substrates** 12678-01-2D, Phenanthroline, conjugates with biomol. **substrates** 16423-68-0D, Erythrosin, conjugates with biomol. **substrates** 17372-87-1D, Eosin, conjugates with biomol. **substrates** 28641-56-7D, 1H,7H-Pyrazolo[1,2-a]pyrazole, conjugates with biomol. **substrates** 38183-12-9D, **Fluorescamine**, conjugates with biomol. **substrates** 82354-19-6D, Texas Red, conjugates with

biomol. **substrates** 82446-52-4D, Lucifer Yellow, conjugates with biomol. **substrates** 117548-22-8D, conjugates with KID peptide **protein kinase substrate** 131124-59-9D, conjugates with biomol. **substrates** 138026-71-8D, BODIPY, conjugates with biomol. **substrates** 141181-71-7D, conjugates with KID peptide **protein kinase substrate** 141865-09-0D, conjugates with biomol. **substrates** 195136-58-4D, Oregon Green 488, conjugates with biomol. **substrates**
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); RCT (Reactant); ANST (Analytical study); PROC (Process); RACT (Reactant or reagent); USES (Uses)
(homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT 321993-65-1DP, conjugate with **fluorescent** dyes
RL: PRP (Properties); RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT 92557-80-7, 5-**Carboxyfluorescein**, succinimidyl ester 150810-69-8 174568-67-3D, conjugate with peptide backbone
RL: RCT (Reactant); RACT (Reactant or reagent)
(homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT **9026-43-1, Protein kinase**
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); CAT (Catalyst use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**labeled substrate** for; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

IT 84745-13-1 121993-99-5 322475-39-8 322475-42-3 322475-49-0 322475-55-8 322475-58-1 322475-61-6 322475-65-0
RL: PRP (Properties)
(unclaimed sequence; homogeneous **fluorescence** method for assaying structural modifications of biomols. using **double-labeled substrates**)

L80 ANSWER 7 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **2001:31675** HCAPLUS
DN **134:83111**
TI Methods and compositions for assaying analytes
IN Yuan, Chong-Sheng
PA General Atomics, USA
SO PCT Int. Appl., 187 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-00
CC **9-16** (Biochemical Methods)
Section cross-reference(s): **7**

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 2001002600	A2	20010111	WO 2000-US18057	20000630
	WO 2001002600	A3	20020110		
	WO 2001002600	C2	20020725		

W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CR, CU, CZ, DE, DK, DM, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA,

MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI,
SK, SL, TJ, TM, TR, TT, TZ, UA, UG, US, UZ, VN, YU, ZA, ZW, AM,
AZ, BY, KG, KZ, MD, RU, TJ, TM
RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZW, AT, BE, CH, CY,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ,
CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG

	US 6376210	B1	20020423	US 1999-347878	19990706
	GB 2368641	A1	20020508	GB 2002-425	20000630
PRAI	US 1999-347878	A	19990706		
	US 1999-457205	A	19991206		
	WO 2000-US18057	W	20000630		

AB Compns. and methods for assaying analytes, preferably, small mol. analytes are provided. Assay methods employ, in place of antibodies or mols. that bind to target analytes or **substrates**, modified **enzymes**, called **substrate** trapping **enzymes**. These modified **enzymes** retain binding affinity or have enhanced binding affinity for a target **substrate** or analyte, but have attenuated catalytic activity with respect to that **substrate** or analyte. The modified **enzymes** are provided. In particular, mutant S-adenosylhomocysteine (SAH) hydrolases, substantially retaining binding affinity or having enhanced binding affinity for homocysteine or S-adenosylhomocysteine but having attenuated catalytic activity, are provided. Conjugates of the modified **enzymes** and a facilitating agent, such as agents that aid in purifn. or linkage to a solid support are also provided.

ST compn assaying analyte

IT **Enzymes, analysis**
RL: ANT (Analyte); ANST (Analytical study)
(Bile acid-binding; methods and compns. for assaying analytes)

IT **Enzymes, uses**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Bile salts-binding; methods and compns. for assaying analytes)

IT **Enzymes, uses**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Cholesterol-binding; methods and compns. for assaying analytes)

IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(DNA-binding; methods and compns. for assaying analytes)

IT Conformation
(DNA; methods and compns. for assaying analytes)

IT **Enzymes, uses**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Ethanol binding; methods and compns. for assaying analytes)

IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(**Fluorescent**; methods and compns. for assaying analytes)

IT **Enzymes, uses**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Folate-binding; methods and compns. for assaying analytes)

IT **Enzymes, uses**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Glucose-binding; methods and compns. for assaying analytes)

IT **Enzymes, uses**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Homocysteine-binding; methods and compns. for assaying analytes)

IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(IgG-binding; methods and compns. for assaying analytes)

IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(Polysaccharide binding; methods and compns. for assaying analytes)

IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)

(RNA-binding; methods and compns. for assaying analytes)
IT Esters, analysis
RL: ANT (Analyte); ANST (Analytical study)
(Sterol fatty acid; methods and compns. for assaying analytes)
IT Carbohydrates, analysis
RL: ANT (Analyte); ANST (Analytical study)
(Tetroses; methods and compns. for assaying analytes)
IT **Enzymes, uses**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Uric acid-binding; methods and compns. for assaying analytes)
IT **Enzyme** functional sites
(active; methods and compns. for assaying analytes)
IT Purification
(affinity; methods and compns. for assaying analytes)
IT Carbohydrates, analysis
RL: ANT (Analyte); ANST (Analytical study)
(aldoses; methods and compns. for assaying analytes)
IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(contractile; methods and compns. for assaying analytes)
IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(defense; methods and compns. for assaying analytes)
IT DNA
RL: ANT (Analyte); ANST (Analytical study)
(**double**-stranded; methods and compns. for assaying analytes)
IT Vitamins
RL: ANT (Analyte); ANST (Analytical study)
(fat-sol.; methods and compns. for assaying analytes)
IT Carbohydrates, analysis
RL: ANT (Analyte); ANST (Analytical study)
(heptoses; methods and compns. for assaying analytes)
IT Carbohydrates, analysis
RL: ANT (Analyte); ANST (Analytical study)
(ketoses; methods and compns. for assaying analytes)
IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(lipid-binding; methods and compns. for assaying analytes)
IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(metal-binding; methods and compns. for assaying analytes)
IT Affinity
Amniotic fluid
Animal cell
Animal tissue
Anions
Artery
Blood analysis
Body fluid
Catalysts
Cell
Cerebrospinal fluid
Composition
Conjugation (molecular association)
Connective tissue
DNA repair
Disease, animal
Drugs
Epithelium
Epitopes
Escherichia coli
Feces
Fluorescent substances

Fungi
Genetic markers
Hydrolysis
Immobilization, biochemical
Infection
Insect (Insecta)
Ions
Lactobacillus casei
Liver
Lymph node
Michaelis constant
Molecules
Mucus
Muscle
Mutation
Neoplasm
Nerve
Organ, animal
Oxidation
Pancreas
Plant cell
Plasmids
Protein sequences
Purification
Recombination, genetic
Saliva
Semen
Sputum
Sulfhydryl group
Tear (ocular fluid)
Test kits
Therapy
Thermoanaerobacterium thermosulfurigenes
Transcription, genetic
Urine analysis
Yeast
(methods and compns. for assaying analytes)

IT Amino acids, analysis
Bile acids
Bile salts
Cardiolipins
Cerebrosides
Fusion **proteins** (chimeric **proteins**)
Gangliosides
Glycerides, analysis
Glycerophospholipids
Hexoses
Inorganic compounds
Lipids, analysis
Monosaccharides
Nucleic acids
Nucleosides, analysis
Nucleotides, analysis
Oligonucleotides
Oligosaccharides, analysis
Organic compounds, analysis
Pentoses
Peptides, analysis
Phosphatidylcholines, analysis
Phosphatidylethanolamines, analysis
Phosphatidylinositols
Phosphatidylserines
Polysaccharides, analysis

Sphingolipids
Sphingomyelins
Sterols
Transport **proteins**
Vitamins
Waxes
RL: ANT (Analyte); ANST (Analytical study)
(methods and compns. for assaying analytes)

IT Antibodies
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(methods and compns. for assaying analytes)

IT Coenzymes
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(methods and compns. for assaying analytes)

IT Reagents
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(methods and compns. for assaying analytes)

IT **Enzymes, uses**
RL: ARG (Analytical reagent use); CAT (Catalyst use); ANST (Analytical study); USES (Uses)
(methods and compns. for assaying analytes)

IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(motile; methods and compns. for assaying analytes)

IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(nutrient; methods and compns. for assaying analytes)

IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(regulatory; methods and compns. for assaying analytes)

IT DNA formation
(replication; methods and compns. for assaying analytes)

IT Fatty acids, analysis
RL: ANT (Analyte); ANST (Analytical study)
(satd.; methods and compns. for assaying analytes)

IT DNA
RL: ANT (Analyte); ANST (Analytical study)
(single-stranded; methods and compns. for assaying analytes)

IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(storage; methods and compns. for assaying analytes)

IT **Proteins**, specific or class
RL: ANT (Analyte); ANST (Analytical study)
(structural; methods and compns. for assaying analytes)

IT Recombination, genetic
(transposition; methods and compns. for assaying analytes)

IT Vitamins
RL: ANT (Analyte); ANST (Analytical study)
(water-sol.; methods and compns. for assaying analytes)

IT 9033-25-4, Methyltransferase
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(Betane-homocysteine; methods and compns. for assaying analytes)

IT 50-69-1, Ribose 50-81-7, Ascorbic acid, analysis 50-89-5, Thymidine, analysis 50-99-7, Glucose, analysis 52-90-4, Cysteine, analysis 53-57-6, Nadph 53-84-9, Nad+ 54-47-7, Pyridoxal 5'-phosphate 56-40-6, Glycine, analysis 56-41-7, Alanine, analysis 56-45-1, Serine, analysis 56-65-5, Atp, analysis 56-82-6, Glyceraldehyde 56-84-8, Aspartic acid, analysis 56-85-9, Glutamine, analysis 56-86-0, Glutamic acid, analysis 56-87-1, Lysine, analysis 57-10-3, Palmitic acid, analysis 57-11-4, Octadecanoic acid, analysis 57-48-7, Fructose, analysis 57-88-5, Cholesterol, analysis 58-61-7, Adenosine, analysis 58-64-0, Adp, analysis 58-68-4, Nadh 58-85-5, Biotin 58-86-6, Xylose, analysis 58-96-8, Uridine 58-97-9, Ump, analysis 58-98-0,

Udp, analysis 59-23-4, Galactose, analysis 59-30-3, analysis
59-43-8, Thiamine, analysis 59-67-6, Nicotinic acid, analysis 60-18-4,
Tyrosine, analysis 61-19-8, Amp, analysis 61-90-5, Leucine, analysis
63-37-6, Cmp 63-38-7, Cdp 63-39-8, Utp 63-68-3, Methionine, analysis
63-91-2, Phenylalanine, analysis 64-17-5, Ethanol, analysis 65-23-6,
Pyridoxin 65-42-9, Lyxose 65-46-3, Cytidine 65-47-4, Ctp 68-19-9,
Vitamin b12 69-93-2, Uric acid, analysis 70-47-3, Asparagine, analysis
71-00-1, Histidine, analysis 72-18-4, Valine, analysis 72-19-5,
Threonine, analysis 73-22-3, Tryptophan, analysis 73-32-5, Isoleucine,
analysis 74-79-3, Arginine, analysis 79-83-4, Pantothenic acid
83-48-7, Stigmasterol 83-88-5, Riboflavin, analysis 85-32-5, Gmp
86-01-1, Gtp 107-43-7, Betaine 118-00-3, Guanosine, analysis
122-32-7, Triolein 134-35-0 143-07-7, Lauric acid, analysis
146-91-8, Gdp 147-81-9, Arabinose 147-85-3, Proline, analysis
365-07-1, Dtmp 365-08-2, Dttp 453-17-8, Triose 491-97-4, Dtdp
506-30-9, Arachidic acid 544-63-8, Myristic acid, analysis 555-43-1,
Tristearin 555-44-2, Tripalmitin 557-59-5, Lignoceric acid 653-63-4,
Damp 800-73-7, Dcdp 902-04-5, Dgmp 964-26-1, Dump 979-92-0,
S-Adenosylhomocysteine 1032-65-1, Dcmp 1406-16-2, Vitamin d
1406-18-4, Vitamin e 1758-51-6, Erythrose 1927-31-7, Datp 2056-98-6,
Dctp 2152-76-3, Idose 2564-35-4, Dgtp 2793-06-8, Dadp 3019-74-7,
Sedoheptulose 3432-99-3 3458-28-4, Mannose 3493-09-2, Dgdp
4033-27-6 5556-48-9, Ribulose 5987-68-8, Altrose 6027-13-0,
Homocysteine 6038-51-3, Allose 7439-89-6, Iron, analysis 7439-95-4,
Magnesium, analysis 7439-96-5, Manganese, analysis 7439-98-7,
Molybdenum, analysis 7440-02-0, Nickel, analysis 7440-09-7, Potassium,
analysis 7440-21-3, Silicon, analysis 7440-23-5, Sodium, analysis
7440-31-5, Tin, analysis 7440-38-2, Arsenic, analysis 7440-42-8,
Boron, analysis 7440-47-3, Chromium, analysis 7440-48-4, Cobalt,
analysis 7440-50-8, Copper, analysis 7440-62-2, Vanadium, analysis
7440-66-6, Zinc, analysis 7440-70-2, Calcium, analysis 7553-56-2,
Iodine, analysis 7732-18-5, Water, analysis 7782-41-4, Fluorine,
analysis 7782-44-7, Oxygen, analysis 7782-50-5, Chlorine, analysis
9004-34-6, Cellulose, analysis 9004-61-9, Hyaluronic acid 9005-25-8,
Starch, analysis 9005-79-2, Glycogen, analysis 11103-57-4, Vitamin a
12001-79-5, Vitamin k 12672-30-9, Arsenic ion, analysis 15158-11-9,
analysis 16887-00-6, Chloride, analysis 16984-48-8, Fluoride, analysis
19163-87-2, Gulose 29884-64-8, Threose 30077-17-9, Talose
42616-25-1, Methioninase
RL: ANT (Analyte); ANST (Analytical study)
(methods and compns. for assaying analytes)

IT 9001-36-9, Glucokinase 9001-51-8, Hexokinase 9001-56-3, Hydroxy
steroid dehydrogenase 9001-78-9, Alkaline phosphatase 9002-03-3,
Dihydrofolate reductase 9002-12-4, Urate oxidase 9002-13-5, Urease
9003-99-0, Peroxidase 9023-99-8D, Cystathionine .beta.-synthase, mutant
9025-54-1D, S-Adenosylhomocysteine hydrolase, mutant 9026-00-0,
Cholesterol esterase 9028-69-7, Methylenetetrahydrofolate reductase
9028-76-6, Cholesterol oxidase 9031-61-2, Thymidylate synthase
9031-72-5, Alcohol dehydrogenase 9055-00-9, Glucose isomerase
37290-90-7, Methionine synthase 50812-37-8, Glutathione S-transferase
61969-99-1, Luciferase
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(methods and compns. for assaying analytes)

L80 ANSWER 8 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **2000:641829** HCAPLUS
DN **133:294059**
TI The questionable role of a microsomal .DELTA.8 acyl-CoA-dependent desaturase in the biosynthesis of polyunsaturated **fatty acids**
AU Chen, Qi; Yin, Feng Qin; Sprecher, Howard
CS Department of Molecular and Cellular Biochemistry, The Ohio State University, Columbus, OH, 43210, USA

SO Lipids (2000), 35(8), 871-879
CODEN: LPDSAP; ISSN: 0024-4201
PB AOCS Press
DT Journal
LA English
CC 13-2 (Mammalian Biochemistry)
Section cross-reference(s): 7

AB Several exptl. approaches were used to det. whether rat liver and testes express an acyl-CoA-dependent .DELTA.8 desaturase. When [1-14C]5,11,14-eicosatrienoic acid was injected via the tail vein, or directly into testes, it was incorporated into liver and testes phospholipids, but it was not metabolized to other **labeled fatty acids**. When [1-14C]11,14-eicosadienoic acid was injected, via the tail vein or directly into testes, or incubated with microsomes from both tissues, it was only metabolized to 5,11,14-eicosatrienoic acid. When Et 5,5,11,11,14,14-d6-5,11,14-eicosatrienoate was fed to rats maintained on a diet devoid of fat, it primarily replaced esterified 5,8,11-eicosatrienoic acid, but not arachidonic acid. No **labeled** linoleate or arachidonate were detected. Dietary Et linoleate and Et 19,19,20,20-d4-1,2-13C-11,14-eicosadienoate were about equally effective as precursors of esterified arachidonate. The **doubly labeled** 11,14-eicosadienoate was metabolized primarily by conversion to 17,17,18,18-d4-9,12-ocatdecadienoic acid, followed by its conversion to yield esterified arachidonate, with a mass four units greater than endogenous arachidonate. In addn., the **doubly labeled substrate** gave rise to a small amt. of arachidonate, six mass units greater than endogenous arachidonate. No evidence was obtained, with the **radiolabeled substrates**, for the presence of a .DELTA.8 desaturase. However, the presence of an ion, six mass units greater than endogenous arachidonate when **doubly labeled** 11,14-eicosadienoate was fed, suggests that a small amt. of the **substrate** may have been metabolized by the sequential use of .DELTA.8 and .DELTA.5 desaturases.

ST acyl CoA desaturase polyunsatd **fatty acid** formation liver

IT **Fatty acids**, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(polyunsatd.; role of microsomal .DELTA.8 acyl-CoA-dependent desaturase in the biosynthesis of polyunsatd. **fatty acids**)

IT Microsome
Testis
(role of microsomal .DELTA.8 acyl-CoA-dependent desaturase in the biosynthesis of polyunsatd. **fatty acids**)

IT Liver
(role of microsomal .DELTA.8 acyl-CoA-dependent desaturase in the biosynthesis of polyunsatd. **fatty acids** in testis)

IT Phospholipids, biological studies
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(role of microsomal .DELTA.8 acyl-CoA-dependent desaturase in the biosynthesis of polyunsatd. **fatty acids** in testis)

IT Phosphatidylcholines, biological studies
Phosphatidylethanolamines, biological studies
Phosphatidylinositols
Phosphatidylserines
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); PRP (Properties); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(role of microsomal .DELTA.8 acyl-CoA-dependent desaturase in the biosynthesis of polyunsatd. **fatty acids** in testis)

IT 15541-36-3, 5,11,14-Eicosatrienoic acid
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(role of microsomal .DELTA.8 acyl-CoA-dependent desaturase in the biosynthesis of polyunsatd. **fatty acids**)

IT 2091-39-6, 11,14-Eicosadienoic acid
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(role of microsomal .DELTA.8 acyl-CoA-dependent desaturase in the biosynthesis of polyunsatd. **fatty acids** in testis)

IT 57-10-3, Palmitic acid, biological studies 57-11-4, Stearic acid, biological studies 60-33-3, 9,12-Octadecadienoic acid (9Z,12Z)-, biological studies 112-80-1, 9-Octadecenoic acid (9Z)-, biological studies 373-49-9 506-17-2 506-32-1, Arachidonic acid 506-32-1D, Arachidonic acid, esters 1783-84-2 5598-38-9 6217-54-5 20590-32-3D, esters 25182-74-5
RL: BPR (Biological process); BSU (Biological study, unclassified); MFM (Metabolic formation); BIOL (Biological study); FORM (Formation, nonpreparative); PROC (Process)
(role of microsomal .DELTA.8 acyl-CoA-dependent desaturase in the biosynthesis of polyunsatd. **fatty acids** in testis)

IT 9014-34-0, Acyl CoA desaturase
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(.DELTA.8; role of microsomal .DELTA.8 acyl-CoA-dependent desaturase in the biosynthesis of polyunsatd. **fatty acids**)

RE.CNT 43 THERE ARE 43 CITED REFERENCES AVAILABLE FOR THIS RECORD

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L80 ANSWER 9 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1999:737042** HCAPLUS
DN **131:348749**
TI Enumeration method and system of analyte detection
IN Starzl, Timothy W.; Clark, Scott; Robinson, Marybeth
PA DDX, Inc., USA
SO PCT Int. Appl., 66 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM G01N
CC **9-1** (**Biochemical Methods**)
Section cross-reference(s): 79, 80
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9958948	A2	19991118	WO 1999-US10917	19990513
	WO 9958948	A3	20020103		
	W: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	EP 1188059	A2	20020320	EP 1999-925655	19990513
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2002526743	T2	20020820	JP 2000-548701	19990513
PRAI	US 1998-85259P	P	19980513		
	WO 1999-US10917	W	19990513		

AB This invention is directed to an optically-based method and system for analyte detection using solid phase immobilization, specific analyte **labels** adapted for signal generation and corresponding processes for the utilization thereof. The enumeration detection method disclosed herein narrows the area for signal observation, thus, improving detectable signal to background ratio. The system is comprised of a platform/support for immobilizing a sample stage having a **labeled** sample (analyte complex) bound thereto, a **radiation** source, an optical app. for generating and directing **radiation** at said sample and a means for data collection and anal. Upon engagement of the system, the sample generates a signal capable of differentiation from background signal, both of which are collected and imaged with a signal detector that generated a sample image to a data processing app. Said app. receives signal measurements and, in turn, enumerates individual binding events. Generated signal may be increased via selected mass enhancement. The invention, enumeration assay methodol. detecting individual binding events, may be used, for example, in analyses to detect analyte or confirm results in both research, com. and point of care applications. For a Staphylococcal enterotoxin B (SEB) detection assay, polyurethane coated silicon wafers were stamped with RTV 108 silicone rubber adhesive sealant. The wafers were coated with capture antibody and blocked. Biotinylated

secondary antibody and **labeling** avidinated polystyrene microspheres were used to detect bound SEB.

ST analysis app signal enumeration; Staphylococcus enterotoxin B immunoassay app

IT Immunoassay
(app., for enterotoxin B; enumeration method and system of analyte detection)

IT Silicone rubber, uses
RL: DEV (Device component use); USES (Uses)
(as adhesive sealant on silicon wafer **substrate**; enumeration method and system of analyte detection)

IT Polyurethanes, uses
RL: DEV (Device component use); USES (Uses)
(as coating on silicon wafer **substrate**; enumeration method and system of analyte detection)

IT **Macromolecular** compounds
Nucleic acids
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(as signal generating element or specific binding mols.; enumeration method and system of analyte detection)

IT Antibodies
RL: ARG (Analytical reagent use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)
(biotinylated, to Staphylococcal enterotoxin B; enumeration method and system of analyte detection)

IT Metals, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(colloidal, signal generating element; enumeration method and system of analyte detection)

IT Antibodies
Antigens
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(conjugates with signal generating agent, as analyte binding element; enumeration method and system of analyte detection)

IT Staphylococcus
(enterotoxin B of, detection of; enumeration method and system of analyte detection)

IT Toxins
RL: ANT (Analyte); ANST (Analytical study)
(enterotoxin B, detection of; enumeration method and system of analyte detection)

IT Analysis
Analytical apparatus
Immobilization, biochemical
Spectroscopy
(enumeration method and system of analyte detection)

IT Antibodies
RL: ARG (Analytical reagent use); DEV (Device component use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)
(immobilized, on coated silicon wafers, to Staphylococcal enterotoxin B; enumeration method and system of analyte detection)

IT Avidins
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(microsphere-immobilized; enumeration method and system of analyte detection)

IT Immunoassay
(of enterotoxin B; enumeration method and system of analyte detection)

IT Albumins, uses
RL: ARG (Analytical reagent use); DEV (Device component use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)
(serum, biotinylated and immobilized, streptavidin-coated microspheres

binding to; enumeration method and system of analyte detection)

IT Films
Mass
Microparticles
(signal generating element; enumeration method and system of analyte detection)

IT **Enzymes, uses**
Glass, uses
Optically active compounds
Polymers, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(signal generating element; enumeration method and system of analyte detection)

IT Molecules
(specific binding, conjugates with signal generating agent, as analyte binding element; enumeration method and system of analyte detection)

IT Microspheres
(streptavidin-coated, binding of, to biotinylated surface; enumeration method and system of analyte detection)

IT 9013-20-1, Streptavidin
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(microspheres coated with and binding of, to biotinylated surface; enumeration method and system of analyte detection)

IT 58-85-5D, Biotin, conjugates with bovine serum albumin, **substrate**-immobilized
RL: ARG (Analytical reagent use); DEV (Device component use); PEP (Physical, engineering or chemical process); ANST (Analytical study); PROC (Process); USES (Uses)
(streptavidin-coated microspheres binding to; enumeration method and system of analyte detection)

IT 9003-53-6
RL: DEV (Device component use); PEP (Physical, engineering or chemical process); PROC (Process); USES (Uses)
(streptavidin-coated, microspheres, binding of, to biotinylated surface; enumeration method and system of analyte detection)

IT 7440-21-3, Silicon, uses
RL: DEV (Device component use); USES (Uses)
(wafers, as **substrate**; enumeration method and system of analyte detection)

L80 ANSWER 10 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1999:691246** HCAPLUS
DN **131:318546**
TI Simplified sequential **chemiluminescent** detection in molecular biology DNA methods
IN Akhavan-Tafti, Hashem
PA Lumigen, Inc., USA
SO PCT Int. Appl., 53 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-68
ICS G01N033-53; G01N033-535; G01N033-545; G01N033-552
CC 3-1 (Biochemical Genetics)
Section cross-reference(s): **7, 9**

FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 9954503	A1	19991028	WO 1999-US6531	19990416

PI WO 9954503 A1 19991028
W: AU, CA, JP
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE

	US 6068979	A	20000530	US 1998-64451	19980422
	AU 9935462	A1	19991108	AU 1999-35462	19990416
	AU 747976	B2	20020530		
	EP 1015641	A1	20000705	EP 1999-917311	19990416
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2002511770	T2	20020416	JP 1999-552985	19990416
PRAI	US 1998-64451	A	19980422		
	WO 1999-US6531	W	19990416		

OS MARPAT 131:318546

AB A method for sequential **chemiluminescent** detection of two differently **labeled** analytes on a single blot is described. In the method, a uniquely **labeled** DNA is detected with a horseradish peroxidase (HRP) **substrate** followed by the detection of another uniquely **labeled** DNA with a second different **enzyme substrate** which also inhibits the **chemiluminescence** generated by HRP. The sequential detection method described herein eliminates the need to strip and reprobe Southern, Northern and Western blots. The effectiveness of the present methods rests on satisfying several requirements for the **enzyme**/reagent pairs. The **chemiluminescent** reaction of the peroxidase with peroxide and the **chemiluminescent** compds. must be capable of being rapidly stopped; this is best accomplished by both inhibiting the **enzyme** and converting unreacted **substrate** to a non-**luminescent** form. Preferred peroxidase **enzyme substrates** comprise LUMIGEN PS-3 and 2,3,6-trifluorophenyl 10-methylacridine-9-carboxylate. The second **enzyme** is preferably a hydrolytic **enzyme**, and esp. preferably an alk. phosphatase with an **enzymically** triggerable dioxetane **substrate** such as LUMI-PHOS PLUS. Potential applications of this method include forensic DNA fingerprinting where more than one probe is used for probing a Southern blot, multiplex DNA sequencing of more than one template, detection of gene rearrangements, mutations and gene linkage.

ST **chemiluminescence dual enzyme** assay; phosphatase **chemiluminescence substrate** assay; alk phosphatase **chemiluminescence substrate** assay; DNA fingerprinting **chemiluminescence dual enzyme** assay; sequencing DNA **chemiluminescence dual enzyme** assay; mutation **chemiluminescence dual enzyme** assay; gene linkage rearrangement **chemiluminescence dual enzyme** assay

IT Gene, animal
RL: ANT (Analyte); ANST (Analytical study)
(CFTR, sequential detection of CFTR genotypes; simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT Genetic linkage
Mutation
(detection of; simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT Immunoassay
(immunoblotting; simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT Recombination, genetic
(rearrangement, detection of; simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT Genotyping (method)
(sequential detection of CFTR genotypes; simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT DNA fingerprinting
DNA sequence analysis
Forensic analysis
Luminescence, chemiluminescence

Southern blot hybridization
(simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT **Enzymes, analysis**
RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT Peroxides, uses
Probes (nucleic acid)
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT Membranes, nonbiological
(solid support; simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT 58-85-5, Biotin 1672-46-4, Digoxigenin 2321-07-5, **Fluorescein**
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(hapten; simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT 57-12-5, Cyanide, uses 100-63-0, Phenylhydrazine 288-32-4, Imidazole, uses 14343-69-2, Azide 15056-35-6, Periodate 16984-48-8, FLuoride, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(peroxidase inhibitor as hydrogen peroxide in combination with; simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT 9001-45-0, Glucuronidase 9001-78-9 9003-99-0, Peroxidase 9027-41-2, Hydrolase 9031-11-2, .beta.-Galactosidase
RL: ANT (Analyte); ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT 124-43-6 5336-90-3D, Acridine-9-carboxylic acid, N-alkyl derivs. 6788-84-7D, Dioxetane, **Enzymically** triggerable 7722-84-1, Hydrogen peroxide, uses 14797-73-0D, Perchlorate, salts 122341-56-4, Lumigen PPD 172834-37-6, 9-Acridinecarboxylic acid, 9,10-dihydro-10-methyl-, 2,3,6-trifluorophenyl ester 189460-56-8, Lumigen PS-3
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

IT 134709-72-1 207996-96-1 207996-98-3 207996-99-4
RL: PRP (Properties)
(unclaimed nucleotide sequence; simplified sequential **chemiluminescent** detection in mol. biol. DNA methods)

RE.CNT 4 THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD

RE

(1) Girotti, S; Analytical Biochemistry 1996, V236, P290 HCAPLUS
(2) Krajewski, S; Analytical Biochemistry 1996, V236, P221 HCAPLUS
(3) Sherf; US 5744320 A 1998 HCAPLUS
(4) Tropix Inc; WO 9724460 A1 1997 HCAPLUS

L80 ANSWER 11 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1999:393972** HCAPLUS
DN **131:41515**
TI Solid phase **enzyme** kinetics screening in microcolonies
IN Bylina, Edward J.; Coleman, William J.; Dilworth, Michael R.; Silva, Christopher M.; Yang, Mary M.; Youvan, Douglas C.
PA Kairos Scientific Inc., USA
SO U.S., 25 pp.
CODEN: USXXAM
DT Patent
LA English

IC ICM C12Q001-44
ICS C12Q001-37; C12Q001-54; C12Q001-00
NCL 435019000
CC 7-1 (**Enzymes**)
Section cross-reference(s): **3, 9**

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	US 5914245	A	19990622	US 1998-98202	19980616
	WO 2000078997	A1	20001228	WO 1999-US13824	19990617
	W: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, UZ, VN, YU, ZA, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM				
	RW: GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW, AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG				
	AU 9948258	A1	20010109	AU 1999-48258	19990617
PRAI	US 1998-82440P	P	19980420		
	US 1998-98202	A	19980616		
	WO 1999-US13824	A	19990617		

AB A MicroColonyImager instrument and solid phase methods to screen cells expressing mutagenized **enzymes** for enhanced activity is provided. The MicroColonyImager instrument and methods permit high throughput screening of **enzyme** libraries by time course analyses of single-pixels, using either absorption, **fluorescence** or FRET. This high throughput assay can detect small differences in **enzyme** rates within microcolonies grown at a nearly confluent d. on an assay disk. Each microcolony is analyzed simultaneously at single-pixel resoln., requiring less than 100 mL **substrate**/measurement. By simultaneously assaying different **substrates tagged** with spectrally distinct **chromogenic** or fluorogenic reporters, the **substrate** specificity of an **enzyme** can be changed.

ST **enzyme** kinetics screening MicroColonyImager solid phase

IT Virus
(expression of virus-encoded genes; solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)

IT Gene
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(expression of virus-encoded genes; solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)

IT Gene
(expression; solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)

IT Optical imaging devices
(**fluorescent**; solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)

IT **Enzymes, biological studies**
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(fusion products, GFP-**enzyme** fusion **proteins**; solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)

IT **Proteins**, specific or class
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(green **fluorescent**, GFP-**enzyme** fusion **proteins**; solid phase **enzyme** kinetics screening in

microcolonies using MicroColonyImager instrument)
IT Spectrometers
Spectrometers
(imaging; solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)
IT Evolution
(mol., directed; solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)
IT **Enzyme** kinetics
Mutagenesis
Protein engineering
Regiochemistry
Stability
Stereochemistry
Thermal stability
(solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)
IT Optical imaging devices
Optical imaging devices
(spectrometers; solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)
IT 9001-22-3, .beta.-Glucosidase
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(of Agrobacterium faecalis; solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)
IT 9001-62-1, Lipase
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(of Rhizopus delemar; solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)
IT 9075-08-5, Restriction endonuclease 103843-28-3, Desaturase
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)
IT 9001-92-7, Protease 9013-19-8, Isomerase 9013-79-0, Esterase 9027-41-2, Hydrolase 9031-56-5, Synthetase 9031-57-6, Synthase 9032-92-2, Glycosidase 9038-14-6, Monooxygenase 9047-61-4, **Transferase** 9055-04-3, Lyase 9055-15-6, Oxidoreductase 37292-90-3, Dioxygenase
RL: ANT (Analyte); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)
IT 502-65-8P, Lycopene
RL: BPN (Biosynthetic preparation); BIOL (Biological study); PREP (Preparation)
(solid phase **enzyme** kinetics screening in microcolonies using MicroColonyImager instrument)
RE.CNT 2 THERE ARE 2 CITED REFERENCES AVAILABLE FOR THIS RECORD
RE
(1) Caldwell; J Microbiological Methods 1992, V15(4), P249
(2) Weaver; Methods 1991, V2(3), P234 HCAPLUS

L80 ANSWER 12 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1998:484312** HCAPLUS
DN **129:199697**
TI Thermodynamics and molecular simulation analysis of hydrophobic **substrate** recognition by aminotransferases

AU Kawaguchi, Shin-Ichi; Kuramitsu, Seiki
CS Department of Biology, Graduate School of Science, Osaka University, Osaka, 560-0043, Japan
SO Journal of Biological Chemistry (1998), 273(29), 18353-18364
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
CC 7-3 (**Enzymes**)
AB Arom. amino acid aminotransferase (AroAT) and aspartate aminotransferase (AspAT) are known as **dual-substrate enzymes**, which can bind acidic and hydrophobic **substrates** in the same pocket (Kawaguchi, S., Nobe, Y., Yasuoka, J., Wakamiya, T., Kusumoto, S., and Kuramitsu, S. (1997) J. Biochem. (Tokyo) 122, 55-63). In order to elucidate the mechanism of hydrophobic **substrate** recognition, kinetic and thermodn. analyses using **substrates** with different hydrophobicities were performed. They revealed that (1) amino acid **substrate** specificity (kmax/Kd) depended on the affinity for the **substrate** (1/Kd) and (2) binding of the hydrophobic side chain was enthalpy-driven, suggesting that van der Waals interactions between the **substrate**-binding pocket and hydrophobic **substrate** predominated. Three-dimensional structures of AspAT and AroAT bound to .alpha.-aminoheptanoic acid were built using the homol. modeling method. A mol. dynamic simulation study suggested that the outward-facing position of the Arg292 side chain was the preferred state to a greater extent in AroAT than AspAT, which would make the hydrophobic **substrate** bound state of the former more stable. Furthermore, AroAT appeared to have a more flexible conformation than AspAT. Such flexibility would be expected to reduce the energetic cost of conformational rearrangement induced by **substrate** binding. These two mechanisms (positional preference of Arg and flexible conformation) may account for the high activity of AroAT toward hydrophobic **substrates**.
ST aminotransferase **substrate** recognition free energy kinetics; model **substrate** recognition aminotransferase
IT Conformation
(**protein**; thermodn. and mol. simulation anal. of hydrophobic **substrate** recognition by aminotransferases)
IT **Enzyme** kinetics
Free energy
Hydrophobicity
Molecular recognition
Simulation and Modeling, biological
(thermodn. and mol. simulation anal. of hydrophobic **substrate** recognition by aminotransferases)
IT 111-14-8, Heptanoic acid 124-07-2, Octanoic acid, biological studies 142-62-1, Hexanoic acid, biological studies 327-57-1, Norleucine 1821-02-9 2492-75-3 9000-97-9, Aspartate aminotransferase 44902-02-5 37332-38-0, Arom. amino acid aminotransferase
RL: BPR (Biological process); BSU (Biological study, unclassified); PRP (Properties); BIOL (Biological study); PROC (Process)
(thermodn. and mol. simulation anal. of hydrophobic **substrate** recognition by aminotransferases)

L80 ANSWER 13 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1998:344578** HCAPLUS
DN **129:25385**
TI **Chemiluminescent** detection methods using **dual enzyme-labeled** binding partners
IN Akhavan-Tafti, Hashem; Sugioka, Katsuaki; Sugioka, Yumiko; Reddy, Lekkala V.
PA Lumigen, Inc., USA
SO PCT Int. Appl., 65 pp.
CODEN: PIXXD2

DT Patent
LA English
IC ICM G01N033-535
CC **9-5** (**Biochemical Methods**)
Section cross-reference(s): 3, 7, 15
FAN.CNT 12

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9821586	A1	19980522	WO 1997-US19612	19971107
	W: AU, CA, CN, JP, KR				
	RW: AT, BE, CH, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE				
	US 5843666	A	19981201	US 1996-749595	19961115
	AU 9850940	A1	19980603	AU 1998-50940	19971107
	AU 726512	B2	20001109		
	EP 938677	A1	19990901	EP 1997-913856	19971107
	R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, FI				
	JP 2001504226	T2	20010327	JP 1998-522595	19971107
PRAI	US 1996-749595	A	19961115		
	US 1994-300367	A2	19940902		
	WO 1997-US19612	W	19971107		

OS MARPAT 129:25385
AB Methods of detecting analytes or target species using two **enzyme -labeled** specific binding partners where the two **enzymes** function in concert to produce a detectable **chemiluminescent** signal are disclosed. The methods use a specific binding partner **labeled** with a hydrolytic **enzyme** to produce a phenolic enhancer in close proximity to a peroxidase-**labeled** second specific binding partner. The method is useful to detect and quantitate with improved specificity various biol. mols. including antigens and antibodies by the technique of immunoassay, **proteins** by Western blotting, DNA by Southern blotting, RNA by Northern blotting. The method may also be used to detect DNA mutations and juxtaposed gene segments in **chromosomal** translocations and particularly to unambiguously identify heterozygous genotypes in a single test. Cystic fibrosis .DELTA.F508 mutation was detected by Southern **transfer** and hybridization using biotin-**labeled** oligonucleotide complementary to the normal allele and digoxigenin-**labeled** oligonucleotide complementary to the mutant allele, anti-digoxigenin antibody conjugated with alk. **phosphatase**, and avidin-horseradish peroxidase. Detection reagent contained protected horseradish peroxidase enhancer 2-naphthyl phosphate, **chemiluminescent** peroxidase **substrate** 2,3,6-trifluorophenyl 10-methylacridan-9-carboxylate, and urea peroxide, etc. A strong **chemiluminescent** signal was emitted in the heterozygous genotype while the wild type and .DELTA.F508/.DELTA.F508 genotypes were neg.
ST **chemiluminescence** assay **dual enzyme label**; alk phosphatase peroxidase **label chemiluminescence** assay; nucleic acid hybridization **dual enzyme label**; cystic fibrosis gene mutation **chemiluminescence** detection; immunoassay **chemiluminescence dual enzyme label**
IT **Proteins**, general, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT **Chemiluminescence** spectroscopy
Cystic fibrosis
Mutation
Nucleic acid hybridization
PCR (polymerase chain reaction)
Southern blot hybridization

(**chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT DNA
RL: AMX (Analytical matrix); ANST (Analytical study)
(**chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Gene
RL: ANT (Analyte); ANST (Analytical study)
(**chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Antigens
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Probes (nucleic acid)
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Peroxides, biological studies
RL: ARG (Analytical reagent use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Antibodies
Avidins
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); CAT (Catalyst use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(conjugates, with **enzymes**; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Phenols, biological studies
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(enhancer; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Disease, animal
(genetic, recessive; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Genotypes
(heterozygosity, cystic fibrosis gene mutation; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Polyethers, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(hydroxy-contg., background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Immunoassay
(immunoblotting; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Haptens
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**label**; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT Milk
(nonfat, background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT Surfactants
(nonionic, background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT Group IIIA element compounds
RL: ARG (Analytical reagent use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(perborates; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT Immunoassay
(sandwich; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT Albumins, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(serum, background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT Antibodies
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(specific binding partner; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT Recombination, genetic
(translocation; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT Polymers, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(water-sol., background-suppressing agent; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT Glycoproteins, specific or class
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(.gamma.gp120, of HIV-1; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT Human immunodeficiency virus 1
(.gamma.gp120; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT 134709-72-1 207996-96-1
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(PCR primer; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT 9002-61-3, Human chorionic gonadotropin
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)
IT 9003-99-0D, Peroxidase, antibody conjugates 9013-20-1D, Streptavidin, **enzyme** conjugates 9027-41-2D, Hydrolytic **enzymes**, conjugates with anti-hapten antibody
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); CAT (Catalyst use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**chemiluminescent** detection methods using **dual**

enzyme-labeled binding partners)

IT 9015-85-4, DNA ligase
RL: ARG (Analytical reagent use); CAT (Catalyst use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT 124-43-6 7722-84-1, Hydrogen peroxide, biological studies
RL: ARG (Analytical reagent use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT 521-31-3, Luminol 1445-69-8D, hydroxy- or amino-substituted 5336-90-3D, 9-Acridinecarboxylic acid, derivs. 7607-80-9 172834-37-6 172834-40-1
RL: ARG (Analytical reagent use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(**chemiluminescent** peroxidase **substrate**; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT 92-69-3P, p-Phenylphenol 103-90-2P, p-Hydroxyacetanilide 106-41-2P, p-Bromophenol 106-48-9P, p-Chlorophenol 120-83-2P, 2,4-Dichlorophenol 135-19-3P, 2-Naphthol, biological studies 500-85-6P, Phenolindophenol 540-38-5P, p-Iodophenol 939-69-5P, 2-Cyano-6-hydroxybenzothiazole 2591-17-5P, Luciferin 2975-55-5DP, ring halogenated derivs. 2975-55-5P 7400-08-0P, p-Hydroxycinnamic acid 13599-84-3P, 6-Hydroxybenzothiazole 15231-91-1P, 6-Bromo-2-naphthol 20115-09-7P, Dehydroluciferin 208039-05-8P 208039-06-9P
RL: ARG (Analytical reagent use); BPN (Biosynthetic preparation); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); USES (Uses)
(enhancer; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT 9003-99-0, Peroxidase 9027-41-2, Hydrolytic **enzymes**
RL: ARG (Analytical reagent use); CAT (Catalyst use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(**enzyme label**; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT 58-85-5, Biotin 1672-46-4, Digoxigenin 2321-07-5, **Fluorescein**
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(hapten **label**; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT 9001-22-3, .beta.-Glucosidase 9001-45-0, .beta.-Glucuronidase 9001-78-9, Alkaline phosphatase 9016-18-6, Carboxyl esterase 9031-11-2, .beta.-Galactosidase
RL: ARG (Analytical reagent use); CAT (Catalyst use); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(hydrolytic **enzyme label**; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT 207996-94-9D, **fluorescein** 5'-**labeled**
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**labeled** probe; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT 207996-95-0DP, **labeled** with digoxigenin-dUTP

RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); SPN (Synthetic preparation); ANST (Analytical study); BIOL (Biological study); PREP (Preparation); PROC (Process); USES (Uses)
(**labeled** probe; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT 207996-97-2D, 5'-biotin **labeled** 207996-98-3D, 5'-biotin **labeled** 207996-99-4D, 5'-digoxigenin **labeled** 208057-32-3D, 3'-**fluorescein**
RL: ARG (Analytical reagent use); BPR (Biological process); BSU (Biological study, unclassified); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); PROC (Process); USES (Uses)
(**labeled** probe; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

IT 13095-41-5, 2-Naphthyl phosphate 13388-88-0 20056-42-2 24154-09-4 46817-52-1 75966-18-6 108672-78-2 122895-84-5 129058-46-4 137015-67-9 207920-67-0 207920-68-1 207920-68-1D, ring halogenated derivs. 207920-69-2 207920-70-5 207920-71-6 208039-07-0 208039-08-1
RL: ARG (Analytical reagent use); RCT (Reactant); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); RACT (Reactant or reagent); USES (Uses)
(protected enhancer; **chemiluminescent** detection methods using **dual enzyme-labeled** binding partners)

L80 ANSWER 14 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1998:164390** HCAPLUS
DN **128:305555**
TI Differential affinity **labeling** of the two subunits of the homodimeric animal **fatty acid** synthase allows isolation of heterodimers consisting of subunits that have been independently modified
AU Joshi, Anil K.; Rangan, Vangipuram S.; Smith, Stuart
CS Children's Hospital Oakland Research Institute, Oakland, CA, 94609, USA
SO Journal of Biological Chemistry (1998), 273(9), 4937-4943
CODEN: JBCHA3; ISSN: 0021-9258
PB American Society for Biochemistry and Molecular Biology
DT Journal
LA English
CC 7-4 (**Enzymes**)
AB To explore the domain interactions that are required for **catalytic** activity of the multifunctional, homodimeric **fatty acid** synthase (FAS), the authors have formulated a strategy that allows isolation of modified dimers contg. independently mutated subunits. Either a hexahistidine or a FLAG octapeptide **tag** was incorporated into the FAS at either the amino terminus, within an internal noncatalytic domain, or at the carboxyl terminus. The presence of the **tags** had no effect on the activity of the wild-type FAS. His-**tagged** dimers were mixed with FLAG-**tagged** dimers, and the subunits were randomized to produce a mixt. of His-**tagged** homodimers, FLAG-**tagged** homodimers, and **doubly tagged** heterodimers. The **doubly tagged** heterodimers could be purified to homogeneity by chromatog. on an anti-FLAG immunoaffinity column followed by a metal ion chelating column. This procedure for isolation of FAS heterodimers was utilized to det. whether the two centers for **fatty acid** synthesis in the FAS dimer can function independently of each other. **Doubly tagged** heterodimers, consisting of one wild-type subunit and one subunit in which the thioesterase activity had been eliminated, either by mutation or by treatment with phenylmethanesulfonyl fluoride, have 50% of the wild-type thioesterase activity and, in the presence of

substrates, accumulate a long chain fatty acyl moiety on the modified subunit, thus blocking further **substrate** turnover at this center. Nevertheless, the ability of the heterodimer to synthesize **fatty acids** is also 50% of the wild-type FAS, demonstrating that an individual center for **fatty acid** synthesis has the same activity when paired with either a functional or nonfunctional **catalytic** center.

ST **fatty acid** synthase subunit active site

IT **Enzyme** functional sites
(active; differential affinity **labeling** of the two subunits of homodimeric animal **fatty acid** synthase allows isolation of heterodimers consisting of subunits that have been independently modified)

IT 58943-36-5P, Thioesterase
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(activity of **fatty acid** synthase; differential affinity **labeling** of the two subunits of homodimeric animal **fatty acid** synthase allows isolation of heterodimers consisting of subunits that have been independently modified)

IT 9045-77-6P, **Fatty acid** synthase
RL: BAC (Biological activity or effector, except adverse); BPR (Biological process); BSU (Biological study, unclassified); PUR (Purification or recovery); BIOL (Biological study); PREP (Preparation); PROC (Process)
(differential affinity **labeling** of the two subunits of homodimeric animal **fatty acid** synthase allows isolation of heterodimers consisting of subunits that have been independently modified)

L80 ANSWER 15 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1997:112185** HCAPLUS
DN **126:222518**
TI Simultaneous **dual-enzyme** immunoassays in a solid phase
AU Paek, Se-Hwan; Park, Soon-Jae
CS Grad. School Biotechnology, Dep. Biotechnology, College Natural Sci. & Technology, Korea Univ., Chungnam, 339-800, S. Korea
SO Bulletin of the Korean Chemical Society (1997), 18(1), 44-49
CODEN: BKCSDE; ISSN: 0253-2964
PB Korean Chemical Society
DT Journal
LA English
CC **9-10** (**Biochemical Methods**)
Section cross-reference(s): 10, 14, 15

AB A method of **dual**-signal generation from two different **enzymes** was developed and utilized to simultaneously perform **dual** immunoassays in a single microwell. Two **enzymes** selected as tracers were horseradish peroxidase (HRP) and .beta.-galactosidase (GAL). 3,3',5,5'-Tetramethylbenzidine (TMB) and chlorophenol red-.beta.-galactopyranoside (CPRG) as **chromogenic substrates** for the resp. **enzyme** were used. Although the two **enzymes** showed their max. activities at distinct pH conditions (pH 5.1 for HRP and 7.5 for GAL), the **enzyme** reactions were able to be concurrently carried out at pH 5.75 in a **dual-substrate** soln. without signal loss. This performance was achieved by increasing TMB concn. two-fold, introducing potassium salt as activator of GAL reaction, and extending total reaction time 50%. The signal generation method was then used for **dual-enzyme** immunoassays to detect antibodies with co-immobilized Hepatitis C virus antigens (core and NS5) and a Hepatitis B virus antigen (PreS(2)) in a microwell. Dose-response curves of the assays revealed cooperativity between different antigen-antibody complex formation, which suggested that **dual** immunoassays can only be used for qual.

screening tests unless the antigens immobilized were spatially sepd.

ST **enzyme** immunoassay solid phase

IT Hepatitis C virus
(NS-5; simultaneous **dual-enzyme** immunoassays in a solid phase)

IT Hepatitis C virus
(core antigen; simultaneous **dual-enzyme** immunoassays in a solid phase)

IT Immunoassay
(**enzyme**; simultaneous **dual-enzyme** immunoassays in a solid phase)

IT Antibodies
Antigens
RL: ANT (Analyte); THU (Therapeutic use); ANST (Analytical study); BIOL (Biological study); USES (Uses)
(simultaneous **dual-enzyme** immunoassays in a solid phase)

IT 4430-20-0, Chlorophenol red 9003-99-0, Peroxidase 9031-11-2, .beta.-Galactosidase 54827-17-7, 3,3',5,5'-Tetramethylbenzidine
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(simultaneous **dual-enzyme** immunoassays in a solid phase)

L80 ANSWER 16 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1996:754399** HCAPLUS
DN **126:44638**
TI Internal reference for chemically modified spheres
IN Hughes, Kenneth D.
PA Georgia Tech Research Corporation, USA
SO U.S., 9 pp.
CODEN: USXXAM
DT Patent
LA English
IC ICM C12Q001-02
ICS C12Q001-22; C12Q001-37; G01N033-551
NCL 435029000
CC **9-5** (Biochemical Methods)
Section cross-reference(s): **7**, 73
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 5580749	A	19961203	US 1994-327286	19941021

PI US 5580749 A 19961203 US 1994-327286 19941021

AB A probe system for monitoring chem. activity of a target chem. in an environment has first and second marker compds. each bonded to a common **substrate** to keep the resp. markers in phys. proximity. The first marker is a chem. that has a max. emission intensity at a first wavelength, and it is chem. shielded from the environment being studied. The second marker is a chem. that, when in a first state, has a max. emission intensity at a second wavelength different from the first wavelength and which, in a second state, does not have a max. emission intensity at the second wavelength. The second marker is convertible between said states through chem. reaction with the target chem. The common **substrate** is a carrier particle, the first marker being impregnated within the carrier particle and the second marker being chem. bonded to the exterior surface of the carrier particle. The carrier particle may be a polymeric material, such as polystyrene, esp. formed into a microsphere. The second marker may be in the second state prior to chem. reaction with the target chem. and is converted to the first state after chem. reaction with the target chem., or it may be in the first state prior to chem. reaction with the target chem., convertible to the second state by chem. reaction with the target chem. The method and probe may be used for measuring environmental stress in aquatic organisms by adding a probe system to an aquatic system contg. a plurality of the

aquatic organisms, monitoring uptake of the probe system by the aquatic organisms, and measuring the change in emission intensity ratio with time in the digestive tract of the aquatic organisms.

ST internal ref chem modified microsphere probe; aquatic organism environmental stress detn probe; cell **enzyme** detn **fluorescent** probe prepn; probe **double** **fluorescent** marker polymer carrier; digitized video **fluorescence** microscopy probe

IT Aquaculture
Aquatic animal
Brachionus calyciflorus
Carriers
Cell
Digestive tract
Fluorescent dyes
Fluorescent probes
Latex
Microorganism
Microspheres
Rotifer (Rotifera)
Stress, animal
(probe contg. carrier with 2 markers for **fluorescence** monitoring of biomols.)

IT **Enzymes, analysis**
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(probe contg. carrier with 2 markers for **fluorescence** monitoring of biomols.)

IT Glass, analysis
Peptides, analysis
Polymers, analysis
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(probe contg. carrier with 2 markers for **fluorescence** monitoring of biomols.)

IT **Fluorescence** microscopy
(video, digitized; probe contg. carrier with 2 markers for **fluorescence** monitoring of biomols.)

IT 9013-79-0, Esterase 9031-94-1, Aminopeptidase 9031-96-3, Peptidase
RL: ANT (Analyte); BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); ANST (Analytical study); BIOL (Biological study)
(probe contg. carrier with 2 markers for **fluorescence** monitoring of biomols.)

IT 596-09-8, **Fluorescein** diacetate 7385-67-3, Nile red
113721-87-2 150206-05-6 150206-15-8
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(probe contg. carrier with 2 markers for **fluorescence** monitoring of biomols.)

IT 9003-53-6, Polystyrene 25104-18-1, Polylysine 38000-06-5, Polylysine
RL: ARU (Analytical role, unclassified); ANST (Analytical study)
(probe contg. carrier with 2 markers for **fluorescence** monitoring of biomols.)

IT 109-02-4, N-Methylmorpholine 5872-22-0
RL: RCT (Reactant); RACT (Reactant or reagent)
(probe contg. carrier with 2 markers for **fluorescence** monitoring of biomols.)

L80 ANSWER 17 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1996:182977** HCAPLUS
DN **124:254011**
TI Technical characteristics of a serum cholinesterase assay by using a **dual substrate** on Chem 1

AU Salerno, G.; Cerasuolo, D.; Lupo, T.
CS Facolta Medicina Chirurgia, Univ. Studi Napoli "Federico II", Naples, 80131, Italy
SO Giornale Italiano di Chimica Clinica (1995), 20(2), 113-21
CODEN: GICCD7; ISSN: 0392-2227
PB Piccin
DT Journal
LA Italian
CC 7-1 (**Enzymes**)
AB The assay of cholinesterase serum activity, when performed by the classic method which employs butyrylthiocholine as **substrate** and 5,5' dithiobis-2-nitrobenzoic acid as **chromogen**, requires sample predilution because of the high **enzyme** concn. in plasma or serum. Consequently, there were difficulties in implementing this method on CHEM 1 instrumentation, which utilizes a low fixed reagent/sample vol. ratio. These were overcome by using a **dual substrate**, butyrylthiocholine and butyrylcholine, in an optimal molar concn. ratio and by evaluating only the end product of butyrylthiocholine **substrate**. Here we evaluate the tech. performance of this new procedure and its applicability in our lab. where some hundred samples are processed weekly. Our data show a total imprecision lower than 2.5%, linearity in the range concn. of 1000 U/L - 12,000 U/L, no interference of Hb up to 500 mg/dL, bilirubin up to 21 mg/dL and triglycerides up to 530 mg/dL, in addn. the carryover was very low. The results obtained in 40 human plasma and sera samples from the same patients were very similar and the correlation between data obtained in 125 sera, over a wide range of concns., with this method and the classic procedure (butyrylthiocholine as **substrate**) was very satisfactory (r = 0.997).
ST blood serum cholinesterase detn **dual substrate**
IT Blood analysis
(tech. characteristics of a serum cholinesterase assay using a **dual substrate** (butyrylthiocholine and butyrylcholine) on CHEM 1 instrumentation)
IT 9001-08-5, Cholinesterase
RL: ANT (Analyte); ANST (Analytical study)
(tech. characteristics of a serum cholinesterase assay using a **dual substrate** (butyrylthiocholine and butyrylcholine) on CHEM 1 instrumentation)
IT 3922-86-9, Butyrylcholine 4555-00-4, Butyrylthiocholine
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(tech. characteristics of a serum cholinesterase assay using a **dual substrate** (butyrylthiocholine and butyrylcholine) on CHEM 1 instrumentation)

L80 ANSWER 18 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1996:161185** HCAPLUS
DN **124:197760**
TI Photocleavable agents and conjugates for the detection and isolation of biomolecules.
IN Rothschild, Kenneth J.; Sonar, Sanjay M.; Olejnik, Jerzy
PA USA
SO PCT Int. Appl., 149 pp.
CODEN: PIXXD2
DT Patent
LA English
IC C07C205-00; C07C205-06; C07C205-07; C07D235-02; C07H001-06; C07H001-08; C07H021-02; C07H021-04; C07K001-02; C07K001-04; C07K001-08; C07K001-10
CC **9-15** (**Biochemical Methods**)
Section cross-reference(s): 1, 3, 14
FAN.CNT 2

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9531429	A1	19951123	WO 1995-US5555	19950511

W: AM, AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, EE, ES, FI, GB, GE, HU, IS, JP, KE, KG, KP
RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN

US 5643722	A	19970701	US 1994-240511	19940511
US 5986076	A	19991116	US 1994-345807	19941122
CA 2189848	AA	19951123	CA 1995-2189848	19950511
AU 9526359	A1	19951205	AU 1995-26359	19950511
EP 763009	A1	19970319	EP 1995-921230	19950511
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LI, LU, MC, NL, PT, SE				
JP 10500409	T2	19980113	JP 1995-529698	19950511
US 6210941	B1	20010403	US 1999-290325	19990412
US 6344320	B1	20020205	US 1999-307579	19990507
US 6358689	B1	20020319	US 2000-583243	20000531
US 2002123032	A1	20020905	US 2001-943120	20010830

PRAI US 1994-240511 A 19940511
US 1994-345807 A 19941122
WO 1995-US5555 W 19950511
US 1995-345807 A 19951122
US 1997-884325 A1 19970627
US 1999-290325 A1 19990412
US 1999-307579 A1 19990507
US 1999-335018 A1 19990617

OS MARPAT 124:197760

AB This invention relates to agents and conjugates that can be used to detect and isolate target components from complex mixts. such as nucleic acids from biol. samples, cells from bodily fluids, and nascent **proteins** from translation reactions. Agents comprise a detectable moiety bound to a photoreactive moiety. Conjugates comprise agents coupled to **substrates** by covalent bonds which can be selectively cleaved with the administration of electromagnetic **radiation**. Target substances **labeled** with detectable mols. can be easily identified and sepd. from a heterologous mixt. of substances. Exposure of the conjugate to **radiation** releases the target in a functional form and completely unaltered. Using photocleavable mol. precursors as the conjugates, **label** can be incorporated into **macromols**., the nascent **macromols**. isolated, and the **label** completely removed. The invention also relates to targets isolated with these conjugates which may be useful as pharmaceutical agents or compns. that can be administered to humans and other mammals. Useful compns. include biol. agents such as nucleic acids, **proteins**, lipids and cytokines. Conjugates can also be used to monitor the pathway and half-life of pharmaceutical compns. in vivo and for diagnostic, therapeutic and prophylactic purposes. The invention also relates to kits comprised of agents and conjugates that can be used for the detection of diseases, disorders and nearly any individual substance in a complex background of substances.

ST photocleavable agent conjugate biomol detection isolation; disease diagnosis photocleavable agent; drug therapy photocleavable agent; nucleic acid detection isolation photocleavable agent; biopolymer detection isolation photocleavable agent; biotin photocleavable deriv biomol detection isolation

IT Phosphatidylethanolamines
Phosphatidylserines
RL: BOC (Biological occurrence); BSU (Biological study, unclassified); BIOL (Biological study); OCCU (Occurrence)
(acylated, photocleavable biotin conjugates; photocleavable agents and conjugates for detection and isolation of biomols.)

IT Transplant and Transplantation
(bone marrow; photocleavable agents and conjugates for detection and isolation of biomols.)

IT Amino acids, preparation
Peptides, preparation

RL: ARG (Analytical reagent use); NUU (Other use, unclassified); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(conjugates with photocleavable agents; photocleavable agents and conjugates for detection and isolation of biomols.)

IT 2,4-Dinitrophenyl group
Animal tissue
Animal tissue culture
Antibiotics
Bacteria
Biotinylation
Blood
Body fluid
Cell
Ceramic materials and wares
Cholera
Chromatography
Diagnosis
Electromagnetic wave
Fluorescent substances
Hematopoietic precursor cell
Immunomodulators
Infection
Infrared **radiation**
Light
Liposome
Lymph
Magnetic substances
Micelles
Microwave
Neoplasm
Nucleic acid hybridization
Parasite
Pharmaceutical analysis
Pharmaceuticals
Photochemistry
Photolysis
Physiological saline solutions
Polymerase chain reaction
Radio wave
Semiconductor materials
Therapeutics
Ultraviolet **radiation**
Vaccines
Virus
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Biopolymers
Enzymes
Fatty acids, analysis
Lipids, analysis
Lymphokines and Cytokines
Neoplasm inhibitors
Nucleic acids
Nucleosides, analysis
Polysaccharides, analysis
Proteins, analysis
Ribonucleic acids, **transfer**
Toxins
RL: ANT (Analyte); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Deoxyribonucleic acids
RL: ANT (Analyte); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Ribonucleic acids
RL: ANT (Analyte); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT **Luminescent** substances
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Antibodies
Avidins
Carbohydrates and Sugars, uses
Glycoproteins, uses
Halides
Haptens
Hormone receptors
Hormones
Nitroxides
Radioelements, uses
Receptors
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); ANST (Analytical study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Glass, oxide
RL: ARU (Analytical role, unclassified); NUU (Other use, unclassified); ANST (Analytical study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Metals, analysis
RL: ARU (Analytical role, unclassified); NUU (Other use, unclassified); ANST (Analytical study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Plastics
RL: ARU (Analytical role, unclassified); NUU (Other use, unclassified); ANST (Analytical study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Collagens, biological studies
RL: BUU (Biological use, unclassified); NUU (Other use, unclassified); BIOL (Biological study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Glycerides, biological studies
RL: BUU (Biological use, unclassified); NUU (Other use, unclassified); BIOL (Biological study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Oils
RL: BUU (Biological use, unclassified); NUU (Other use, unclassified); BIOL (Biological study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT Antigens
RL: ANT (Analyte); ANST (Analytical study)
(CD3, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Antigens
RL: ANT (Analyte); ANST (Analytical study)
(CD34, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Onium compounds
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); ANST (Analytical study); USES (Uses)
(acridinium, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Molecules
(biochem., photocleavable agents and conjugates for detection and isolation of biomols.)

IT **Macromolecular** compounds
RL: ANT (Analyte); PUR (Purification or recovery); ANST (Analytical study); PREP (Preparation)
(biol., photocleavable agents and conjugates for detection and isolation of biomols.)

IT Therapeutics
(chemo-, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Virus, animal
(cytomegalo-, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Magnetic substances
(dia-, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Digestive tract
(disease, gastroenteritis, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Genetics
(disorders, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Virus, animal
(entero-, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Immunoassay
(**enzyme**-linked immunosorbent assay, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Magnetic substances
(ferro-, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Embryo
(fetus, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Virus, animal
(hepatitis B, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Receptors
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); ANST (Analytical study); USES (Uses)
(hormone, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Virus, animal
(human T-cell leukemia type I, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Virus, animal
(human immunodeficiency, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Nucleic acid hybridization
(in situ, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Body fluid
(interstitial, photocleavable agents and conjugates for detection and

isolation of biomols.)

IT Ribonucleic acids, **transfer**
RL: SPN (Synthetic preparation); PREP (Preparation)
(lysine-specific, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Nucleotides, preparation
RL: SPN (Synthetic preparation); PREP (Preparation)
(oligo-, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Virus, animal
(papilloma, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Magnetic substances
(para-, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Cell
(stem, photocleavable agents and conjugates for detection and isolation of biomols.)

IT Bone marrow
(transplant, photocleavable agents and conjugates for detection and isolation of biomols.)

IT 7553-56-2, Iodine, uses 7726-95-6, Bromine, uses 7782-41-4, Fluorine, uses 7782-50-5, Chlorine, uses
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT 260-94-6, Acridine 7440-18-8D, Ruthenium, chelates 9013-20-1, Streptavidin 11028-71-0, Concanavalin A 14809-11-1D, Phosphoramidous acid, derivs., linkers 73467-76-2, Benzopyrene
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); ANST (Analytical study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT 58-85-5DP, Biotin, photocleavable derivs. 91-64-5DP, Coumarin, photocleavable derivs. 605-65-2DP, Dansyl chloride, photocleavable derivs. 2321-07-5DP, photocleavable derivs. 13558-31-1DP, photocleavable derivs. 166983-72-8P 174406-67-8P 174406-69-0P 174406-72-5P
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT 9012-36-6, Agarose
RL: ARU (Analytical role, unclassified); NUU (Other use, unclassified); ANST (Analytical study); USES (Uses)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT 9012-90-2, DNA polymerase 9014-24-8, RNA polymerase 9027-67-2, Terminal deoxynucleotidyl **transferase**
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT 56-84-8, Aspartic acid, reactions 56-86-0, Glutamic acid, reactions 58-61-7, Adenosine, reactions 100-97-0, reactions 105-53-3, Diethyl malonate 951-77-9, Deoxycytidine 2840-26-8, 3-Amino-4-methoxybenzoic acid 3113-72-2, 5-Methyl-2-nitrobenzoic acid 6851-99-6, 2-Bromo-2'-nitroacetophenone 17776-78-2 58822-25-6, Leucine-enkephalin 62935-72-2 72040-64-3 74124-79-1, N,N'-Disuccinimidyl carbonate 89992-70-1, 2-Cyanoethyl-N,N-diisopropylchlorophosphoramidite 105409-84-5 147218-60-8 166983-74-0, 5-Aminomethyl-2-nitroacetophenone hydrochloride 174406-73-6

RL: RCT (Reactant); RACT (Reactant or reagent)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT 23082-65-7P 38818-49-4P, 5-Methyl-2-nitrobenzoyl chloride
58822-25-6DP, Leucine-enkephalin, photocleavable biotin conjugates
69976-70-1P, 5-Methyl-2-nitroacetophenone 99821-59-7P,
5-Bromomethyl-2-nitroacetophenone 130017-51-5P 130017-52-6P,
2-Nitro-4-methoxy-5-(N-acetylamino)acetophenone 141468-63-5P
166983-70-6P 166983-71-7P 174157-59-6P 174406-66-7P 174406-68-9P
174406-70-3P 174406-71-4P 174406-74-7P 174406-75-8P
RL: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT 105409-84-5DP, photocleavable biotin conjugates 105434-72-8DP, photocleavable biotin conjugates 143908-73-0DP, photocleavable biotin conjugates 147218-60-8DP, photocleavable biotin conjugates
174157-60-9P 174157-61-0P
RL: SPN (Synthetic preparation); PREP (Preparation)
(photocleavable agents and conjugates for detection and isolation of biomols.)

IT 91-64-5P, Coumarin
RL: ARG (Analytical reagent use); NUU (Other use, unclassified); SPN (Synthetic preparation); ANST (Analytical study); PREP (Preparation); USES (Uses)
(photocleavable derivs.; photocleavable agents and conjugates for detection and isolation of biomols.)

L80 ANSWER 19 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1995:596083** HCAPLUS
DN **123:163764**
TI New **fluorescence** tools for investigating **enzyme** activity
AU Hughes, Kenneth D.; Bittner, Diana L.; Olsen, Greta A.
CS School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, 30332-0400, USA
SO Analytica Chimica Acta (1995), 307(2-3), 393-402
CODEN: ACACAM; ISSN: 0003-2670
PB Elsevier
DT Journal
LA English
CC 7-1 (**Enzymes**)
Section cross-reference(s): **9**, 10
AB Novel **fluorescence**-based **enzyme-substrate** probes have been fabricated which incorporate a unique utilization of chem. modified micron-sized particles in conjunction with a single-excitation **dual**-emission wavelength ratio technique. By chem. modifying micron-sized particles with both an **enzyme** -specific **substrate** and a ref. fluorophore the effects of source intensity fluctuations, fluorophore diffusion, and variances in **substrate** loading inherent in in situ biol. **fluorescence** assays can be reduced. Thus, these probes have the potential to provide more sensitive and less invasive **fluorescence** detection of **enzyme** activity in soln., in microorganisms and in single cells. In addn., proper selection of particle size facilitates selective targeting of microorganisms through natural ingestion processes. Examples of source fluctuation and **substrate** loading corrections are provided for in in vitro expts. with a common esterase species. The in situ application of these probes in individual microorganisms which are used as biosensors is also discussed.
ST microorganism cell **enzyme** detection **fluorescent** probe; microsphere conjugate fluorophore **enzyme substrate**
IT Bacteria

Cell
Fluorescent substances
Microorganism
(**fluorescent** tools for investigating **enzyme** activity)

IT **Enzymes**
RL: ANT (Analyte); ANST (Analytical study)
(**fluorescent** tools for investigating **enzyme** activity)

IT Biosensors
(**enzymic, fluorescent** tools for investigating **enzyme** activity)

IT Spectrochemical analysis
(fluorometric, **fluorescent** tools for investigating **enzyme** activity)

IT Spheres
(micro-, **fluorescent** tools for investigating **enzyme** activity)

IT 9016-18-6
RL: ANT (Analyte); ANST (Analytical study)
(**fluorescent** tools for investigating **enzyme** activity)

IT 3348-03-6D, microsphere-conjugated
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**fluorescent** tools for investigating **enzyme** activity)

L80 ANSWER 20 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1995:196606** HCAPLUS
DN **122:26534**
TI Multisubstrate Inhibition of 4-Hydroxybenzoate 3-Monooxygenase
AU Salituro, Francesco G.; Demeter, David A.; Weintraub, Herschel J. R.; Lippert, Bruce J.; Resvick, Robert J.; McDonald, Ian A.
CS Marion Merrell Dow Research Institute, Cincinnati, OH, 45215, USA
SO Journal of Medicinal Chemistry (1994), 37(24), 4076-8
CODEN: JMCMAR; ISSN: 0022-2623
DT Journal
LA English
CC 7-3 (**Enzymes**)
AB Pseudomonas **fluorescens** 4-hydroxybenzoate 3-monooxygenase (EC 1.14.13.2) (I) is a well-characterized NADPH-dependent flavin monooxygenase which works via a random sequential **dual substrate** addn. mechanism. Using the published x-ray crystal structure of I with bound **substrate** and mol. modeling techniques, 2 isomeric multisubstrate inhibitors (an inhibitor that combines features of >1 **substrate**; in the case of I, p-hydroxybenzoate and NADPH) of this **enzyme**, 2-benzyloxy- and 3-benzyloxy-4-hydroxybenzoic acid (II and III, resp.), were designed, synthesized, and tested. II was found to be a potent competitive inhibitor of I, with Ki values of 59 and 69 nM vs. p-hydroxybenzoate and NADPH, resp., demonstrating that it acted as a multisubstrate inhibitor. III had a lesser affinity for I, probably because of a less favorable orientation in the active site.
ST hydroxybenzoate monooxygenase inhibition benzyloxyhydroxybenzoate
IT Pseudomonas **fluorescens**
(inhibition of Pseudomonas 4-hydroxybenzoate 3-monooxygenase by multisubstrate-based inhibitor)
IT Michaelis constant
(of 4-hydroxybenzoate 3-monooxygenase of Pseudomonas **fluorescens**)
IT Molecular modeling
(of hydroxybenzoate monooxygenase multisubstrate-based inhibitors)
IT Kinetics, **enzymic**

(of inhibition; of 4-hydroxybenzoate 3-monooxygenase of Pseudomonas **fluorescens** by benzyloxyhydroxybenzoate)

IT 159832-33-4P, 2-Benzyloxy-4-hydroxybenzoic acid 159832-34-5P, 3-Benzyloxy-4-hydroxybenzoic acid
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); SPN (Synthetic preparation); BIOL (Biological study); PREP (Preparation)
(inhibition of Pseudomonas 4-hydroxybenzoate 3-monooxygenase by multisubstrate-based inhibitor)

IT 9059-23-8, 4-Hydroxybenzoate 3-monooxygenase
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(inhibition of Pseudomonas 4-hydroxybenzoate 3-monooxygenase by multisubstrate-based inhibitor)

IT 2150-47-2, Methyl 2,4-Dihydroxybenzoate 3943-89-3, Ethyl 3,4-Dihydroxybenzoate
RL: RCT (Reactant); RACT (Reactant or reagent)
(inhibition of Pseudomonas 4-hydroxybenzoate 3-monooxygenase by multisubstrate-based inhibitor)

L80 ANSWER 21 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1995:169433** HCAPLUS
DN **122:50738**
TI Test kits and methods for rapidly testing for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**
IN Hird, Robert F.; Cosgrove, Edward F.
PA Envirocon International Incorp., USA
SO PCT Int. Appl., 23 pp.
CODEN: PIXXD2
DT Patent
LA English
IC ICM C12Q001-34
ICS C12Q001-37; C12Q001-26; C12Q001-02; C12Q001-00; C12Q001-04; G01N033-566; G01N033-537
CC **9-5** (**Biochemical Methods**)
Section cross-reference(s): 17
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	WO 9421816	A1	19940929	WO 1994-US3207	19940324
	W: AT, AU, BB, BG, BR, BY, CA, CH, CN, CZ, DE, DK, ES, FI, GB, HU, JP, KP, KR, KZ, LK, LU, LV, MG, MN, MW, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, TT, UA, US, UZ, VN				
	RW: AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG				
	AU 9464153	A1	19941011	AU 1994-64153	19940324
PRAI	US 1993-37621		19930325		
	WO 1994-US3207		19940324		

OS MARPAT 122:50738
AB The invention provides methods and kits for rapid detection of viable microorganisms, including bacteria, with. An **enzyme** detection system comprising synthetic **substrates** that are cleaved in the presence of an **enzyme** of a microorganism to release a **tag** which can be a **fluorescent tag.** The invention further provides a **color** developer that renders the **tag** visible in light other than UV light. Thus, sites at a food processing plant were tested for bacterial contamination by swabbing, and test plates contg. L-alanyl-6-aminoquinolone were inoculated from the swabs, incubated, and obsd. under UV. The no. of **fluorescent** colonies detected correlated well with the no. that turned purple after addn. of a **color** developer, p-dimethylaminocinnamaldehyde.
ST bacteria detection **enzyme** fluorometry

IT **Fluorescent** substances
(conjugates, as **enzyme substrates**; test kits and methods for rapidly testing for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**)

IT Staining, biological
(**fluorescent** conjugates as **enzyme substrates** in; test kits and methods for rapidly testing for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**)

IT Bacteria
Escherichia coli
Listeria
Microorganism
Pseudomonas aeruginosa
Salmonella
Staphylococcus aureus
(test kits and methods for rapidly testing for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**)

IT **Enzymes**
RL: ANT (Analyte); ANST (Analytical study)
(test kits and methods for rapidly testing for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**)

IT Dyes
(**color** formers, test kits and methods for rapidly testing for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**)

IT Spectrochemical analysis
(fluorometric, test kits and methods for rapidly testing for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**)

IT Bacteria
(gram-neg., test kits and methods for rapidly testing for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**)

IT 56-41-7D, L-Alanine, conjugates with **fluorescent** compds.
56-85-9D, L-Glutamine, conjugates with **fluorescent** compds.
61-90-5D, L-Leucine, conjugates with **fluorescent** compds.
63-91-2D, L-Phenylalanine, conjugates with **fluorescent** compds.
74-79-3D, L-Arginine, conjugates with **fluorescent** compds.
91-59-8D, .beta.-Naphthylamine, conjugates 98-79-3D, L-Pyroglutamic acid, conjugates with **fluorescent** compds. 100-01-6D, p-Nitroaniline, conjugates 2764-95-6D, 4-Methoxy-2-naphthylamine, conjugates 6160-80-1 26093-31-2D, 7-Amino-4-methylcoumarin, conjugates 32949-41-0D, conjugates with **fluorescent** compds. 53518-15-3D, 7-Amino-4-trifluoromethylcoumarin, conjugates 58721-76-9D, conjugates 65286-27-3 66447-31-2 66642-36-2 76410-15-6D, conjugates with **fluorescent** compds. 77471-41-1 79207-68-4D, conjugates 98516-72-4 105888-45-7 107441-49-6D, conjugates with **fluorescent** compds. 116523-84-3 138501-87-8D, conjugates with **fluorescent** compds. 158843-95-9D, conjugates with **fluorescent** compds. 158843-96-0
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(as **enzyme substrate**; test kits and methods for rapidly testing for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**)

IT 97-51-8, 5-Nitrosalicylaldehyde 100-52-7, Benzaldehyde, uses 555-16-8, p-Nitrobenzaldehyde, uses 6203-18-5, p-Dimethylaminocinnamaldehyde
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(**color** developer; test kits and methods for rapidly testing

for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**)

IT 6578-06-9, 5-Bromo-4-chloro-3-indolyl phosphate p-toluidine salt
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(test kits and methods for rapidly testing for contamination by microorganisms by detection of microbial **enzymes** with **fluorescent substrates**)

L80 ANSWER 22 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1995:32358** HCAPLUS
DN **122:127217**
TI Mechanistic study of HLE inhibition using **dual labeled macromolecular** inhibitor
AU Noskova, Dagmar; Mohammadi, Fatemeh; Savidge, Sandra J.; Digenis, George A.
CS Coll. Pharmacy, Univ. Kentucky, Lexington, KY, 40536-0082, USA
SO Journal of Enzyme Inhibition (1993), 7(4), 303-9
CODEN: ENINEG; ISSN: 8755-5093
DT Journal
LA English
CC 7-3 (**Enzymes**)
AB The mechanism of inhibition of a specific and effective (Ki = 1-10 nM) **macromol.** inhibitor of human leukocyte elastase (HLE) was investigated. The inhibitor, polymer-bound peptidyl carbamate (I) was **labeled** with [3H] at its polymeric backbone (Mol. Wt. = 27,000) and with [14C] in it peptidyl carbamate moiety. When the **macromol** . inhibitor I was incubated with HLE to complete inhibition and then competitively displaced by an HLE **substrate**, only intact [3H/14C] polymer-bound inhibitor I was recovered. At the same time complete restoration of **enzymic** activity was achieved. Gel permeation chromatog. and HPLC were utilized to eliminate the possibility of the presence of low mol. wt. fragments resulting from the interaction of I with HLE. It is concluded that I exerts its inhibitory action on HLE without the prior release of the low mol. wt. peptidyl carbamate moiety (Mw = 570).
ST peptidyl carbamate polymer inhibition leukocyte elastase
IT 9004-06-2, Elastase
RL: BPR (Biological process); BSU (Biological study, unclassified); BIOL (Biological study); PROC (Process)
(human; mechanism of human leukocyte elastase inhibition by polymer-bound peptidyl carbamate)
IT 161054-02-0
RL: BAC (Biological activity or effector, except adverse); BSU (Biological study, unclassified); BIOL (Biological study)
(mechanism of human leukocyte elastase inhibition by polymer-bound peptidyl carbamate)

L80 ANSWER 23 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1994:625587** HCAPLUS
DN **121:225587**
TI On-line **enzymic** amplification by **substrate** cycling in a **dual** bioreactor with rotation and amperometric detection
AU Raba, Julio; Mottola, Horacio A.
CS Dep. Chemistry, Oklahoma State Univ., Stillwater, OK, 74078-0447, USA
SO Analytical Biochemistry (1994), 220(2), 297-302
CODEN: ANBCA2; ISSN: 0003-2697
DT Journal
LA English
CC **9-7** (**Biochemical Methods**)
Section cross-reference(s): 6, **7**
AB The amplification approach centered on the cycling of two reversibly interconvertible chem. species sequentially participating in two different **enzyme-catalyzed** reactions (**enzymic**

amplification by **substrate** cycling) has been implemented online into a continuous-flow/stopped-flow/continuous-flow operation. The implementation is illustrated with the detn. of L-lactate in a **dual enzyme** reactor contg. immobilized lactate oxidase (LOD) to **catalyze** the oxidn. of L-lactate by dissolved O. The immobilized LOD was affixed to a rotating disk in the lower part of the flow-through cell. Immobilized lactate dehydrogenase, affixed to the top part of the cell regenerates L-lactate with the mediation of .beta.-NADH as the hydrogen donor. The **substrate** cycling permits the generation of H2O2 beyond the stoichiometric limitation, and this is detected at a stationary Pt-ring electrode located at the bottom part of the cell. The stationary Pt-ring electrode is positioned concentrically to the rotating disk contg. the immobilized LOD. The resulting amplified response permits, in a simple manner, achievement of detection limits as low as 0.3 fmol/L and allows the processing of 30 samples/h.

ST bioreactor **enzyme** amplification **substrate** cycling; lactate detn **dual enzyme** reactor

IT Michaelis constant
(of lactate oxidase/lactate dehydrogenase system)

IT Reactors
(biocatalytic, online **enzymic** amplification by **substrate** cycling in **dual** bioreactor with rotation and amperometric detection)

IT 9001-60-9, Lactate dehydrogenase 9028-72-2, Lactate oxidase
RL: ARG (Analytical reagent use); ANST (Analytical study); USES (Uses)
(immobilized; online **enzymic** amplification by **substrate** cycling in **dual** bioreactor with rotation and amperometric detection)

IT 79-33-4, L Lactic acid, analysis
RL: ANT (Analyte); ANST (Analytical study)
(online **enzymic** amplification by **substrate** cycling in **dual** bioreactor with rotation and amperometric detection)

L80 ANSWER 24 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1994:49583** HCAPLUS
DN **120:49583**
TI Liquid-phase immunodiagnostic assay (LIDA) reagent, method, device, and kit
IN Clemmons, Roger M.
PA Univ. of Florida, USA
SO S. African, 49 pp.
CODEN: SFXXAB
DT Patent
LA English
IC ICM C12Q
ICS G01N
CC **9-10** (**Biochemical Methods**)
Section cross-reference(s): 15

FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	ZA 9107388	A	19930331	ZA 1991-7388	19910917

AB The LIDA reagent of the invention includes (1) a 1st **enzyme** (e.g. glucose oxidase); (2) a 2nd **enzyme** (e.g. horseradish peroxidase); (3) a 1st agent capable of binding with an analyte to form a complex, the agent being attached to 1 of the 1st and 2nd **enzymes** ; and (4) a complex-binding agent attached to the remaining **enzyme** . The 1st **enzyme** is capable of interacting with a **substrate** for the 1st **enzyme** to produce a **substrate** for the 2nd **enzyme**, and the 2nd **enzyme** is capable of interacting with the **substrate** produced by the 1st **enzyme**, together with any necessary addnl. **substrates**, such that the occurrence of the second interaction is detectable. The

reagent may also include a scavenger substance (e.g. catalase) capable of inactivating the **substrate** produced by the 1st **enzyme**. Assay methods, kits and an assay device are included; a sectional view of the device is presented. Prepn. of **enzyme** conjugates for the assay is described.

ST liq phase **dual enzyme** immunoassay; EIA **dual enzyme** liq phase; LIDA immunoassay

IT Antigens
RL: ANST (Analytical study)
(antibody to, of HIV, **enzyme** conjugate, for **dual-enzyme** LIDA immunoassay)

IT Scavengers
(in **dual-enzyme** LIDA immunoassay)

IT Immunoassay
(app., for **dual-enzyme** LIDA immunoassay)

IT **Proteins**, specific or class
RL: ANST (Analytical study)
(complexes, RhC, **enzyme** conjugates, for **dual-enzyme** LIDA immunoassay)

IT **Enzymes**
RL: ANST (Analytical study)
(conjugates, with analyte-binding agents and complex-binding agents, for **dual-enzyme** LIDA immunoassay)

IT Antibodies
RL: ANST (Analytical study)
(conjugates, with **enzymes**, for **dual-enzyme** LIDA immunoassay)

IT Immunoassay
(**enzyme**, liq. phase (LIDA), **dual-enzyme**)

IT Antigens
RL: ANST (Analytical study)
(hepatitis B surface, antibody to, **enzyme** conjugate, for **dual-enzyme** LIDA immunoassay)

IT Virus, animal
(human immunodeficiency, antigen of, antibody to, **enzyme** conjugate, for **dual-enzyme** LIDA immunoassay)

IT Antibodies
RL: ANST (Analytical study)
(monoclonal, conjugates, with **enzymes**, for **dual-enzyme** LIDA immunoassay)

IT **Proteins**, specific or class
RL: ANST (Analytical study)
(p24, antibody to, of HIV, **enzyme** conjugate, for **dual-enzyme** LIDA immunoassay)

IT 9002-61-3, Chorionic gonadotropin
RL: ANST (Analytical study)
(antibody to, of human, **enzyme** conjugate, for **dual-enzyme** LIDA immunoassay)

IT 9001-05-2, Catalase
RL: ANST (Analytical study)
(as scavenger, for **dual-enzyme** LIDA immunoassay)

IT 9001-37-0D, Glucose oxidase, conjugates with analyte-binding agent or complex-binding agent 9003-99-0D, Peroxidase, conjugates with analyte-binding agent or complex-binding agent 80295-33-6D, Complement C1q, **enzyme** conjugates
RL: ANST (Analytical study)
(for **dual-enzyme** LIDA immunoassay)

L80 ANSWER 25 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1992:486234** HCAPLUS
DN **117:86234**
TI **Enzyme**-linked immunoassays using nanosecond fluorometric detection

AU Azimi, Nooshin T.; Wen, Fujiang; Lister, Richard M.; Chen, Dennis A.; Lytle, Fred E.
CS Dep. Chem., Purdue Univ., West Lafayette, IN, 47907, USA
SO Appl. Spectrosc. (1992), 46(6), 994-8
CODEN: APSPA4; ISSN: 0003-7028
DT Journal
LA English
CC **9-10** (**Biochemical Methods**)
Section cross-reference(s): 11
AB Nanosecond temporal resoln. is combined with an ELISA to improve the lower limit of detection for a plant virus, brome mosaic virus. The method uses alk. phosphatase as the **enzyme** link and .beta.-naphthyl phosphate as the **substrate**. **Enzymic** activity produces the highly **fluorescent tag** .beta.-naphthol. The 8.9-ns lifetime of the **tag** allows temporal discrimination against the assay blank, providing a 64.times. improvement in the detection limit as compared to a steady-state measurement, and a .apprx.4100.times. improvement over a std. ELISA method incorporating the **chromogenic substrate** p-nitrophenyl phosphate.
ST ELISA brome mosaic virus fluorometric detection; leaf barley brome mosaic virus ELISA; Hordeum brome mosaic virus ELISA
IT Leaf
(brome mosaic virus in exts. of infected barley, ELISA of, with nanosecond fluorometric detection)
IT Barley
(brome mosaic virus in exts. of infected, ELISA of, with nanosecond fluorometric detection)
IT Virus, plant
(brome mosaic, detection of, in exts. of infected barley leaf by ELISA with nanosecond fluorometric detection)
IT 13095-41-5, .beta.-Naphthyl phosphate
RL: ANST (Analytical study)
(as fluorogenic **substrate** in ELISA of brome mosaic virus in exts. of infected barley leaf)
IT 135-19-3, .beta.-Naphthol, uses
RL: USES (Uses)
(as fluorometric probe in ELISA of brome mosaic virus in exts. of infected barley leaf)
IT 9001-78-9
RL: ANST (Analytical study)
(in ELISA of brome mosaic virus in exts. of infected barley leaf)

L80 ANSWER 26 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1992:124383** HCAPLUS
DN **116:124383**
TI Detection and visualization in biochemical tests using phosphor screens
IN Bers, George; Witney, Franklin R.
PA Bio-Rad Laboratories, Inc., USA
SO Ger. Offen., 7 pp.
CODEN: GWXXBX
DT Patent
LA German
IC ICM G01N033-68
ICS G01N021-76; C12Q001-42
CC **9-5** (**Biochemical Methods**)
FAN.CNT 1

	PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
PI	DE 4122839	A1	19920116	DE 1991-4122839	19910710
	JP 04232864	A2	19920821	JP 1991-112891	19910517
	CA 2043631	AA	19920113	CA 1991-2043631	19910531
	CA 2043631	C	19980421		
	FR 2664703	A1	19920117	FR 1991-8381	19910704

	FR 2664703	B1	19950512		
	GB 2246197	A1	19920122	GB 1991-15090	19910712
	GB 2246197	B2	19940316		
PRAI	US 1990-551961		19900712		

AB Immobilized **macromols.** (e.g. **proteins**, nucleic acid sequences), **labeled** with a substance which induces a **chemiluminescent** reaction in a liq. **substrate**, are visualized by exposing the **substrate** to a phosphor screen which absorbs and records the **chemiluminescence**. Thus, DNA was prepd. in which random T residues were replaced with biotin-**labeled** U residues. The DNA was spotted on a cationized nylon membrane which was then incubated with a streptavidin-alk. **phosphatase** conjugate, followed by an aq. soln. of 3-(2'-spiroadamantane)-4-methoxy-4-(3"-phosphoryloxy)phenyl-1,2-dioxetane. **Chemiluminescence** from this **substrate** was detected by a Quantex Q-16 phosphor screen based on SrS doped with Sm and Ce oxide and contg. BaSO4 and LiF as fluxing agents; the screen was then scanned with a laser ir scanner. The sensitivity of this detection system was 0.1 pg DNA.

ST **macromol** detection **chemiluminescence** phosphor screen

IT **Macromolecular** compounds
RL: ANST (Analytical study)
(immobilized, detection and visualization of, by **chemiluminescence**, phosphor screen in)

IT **Luminescent** screens
(in immobilized **macromol.** detection and visualization by **chemiluminescence**)

IT Spectrochemical analysis
(**chemiluminescence**, immobilized **macromol.** detection and visualization in, phosphor screen in)

IT Deoxyribonucleic acids
RL: ANST (Analytical study)
(immobilized, detection and visualization of, by **chemiluminescence**, phosphor screen in)

IT 58-85-5D, Biotin, DNA conjugates 9001-78-9D, Alkaline phosphatase, conjugates with streptavidin 9013-20-1D, Streptavidin, conjugates with alk. phosphatase 124951-96-8
RL: ANST (Analytical study)
(in DNA detection and visualization by **chemiluminescence**, **luminescent** screen in relation to)

IT 9013-05-2D, Phosphatase, conjugates
RL: ANST (Analytical study)
(in **macromol.** detection and visualization by **chemiluminescence**, **luminescent** screen in relation to)

L80 ANSWER 27 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1991:554322** HCAPLUS
DN **115:154322**
TI Estimating bacterial DNA synthesis from [3H]thymidine incorporation: discrepancies among **macromolecular** extraction procedures
AU Torreton, J. P.; Bouvy, M.
CS Cent. Rech. Oceanogr., ORSTOM, Abidjan, Ivory Coast
SO Limnol. Oceanogr. (1991), 36(2), 299-306
CODEN: LIOCAH; ISSN: 0024-3590
DT Journal
LA English
CC **9-8** (**Biochemical Methods**)
Section cross-reference(s): 10, 33, 61

AB Estn. of bacterial DNA synthesis in trophic studies with [3H]thymidine requires quant. extn. of **labeled** DNA. To det. the DNA contribution to total **macromol. labeling** in a eutrophic ecosystem, 3 extn. procedures currently used to est. DNA **labeling** from thymidine incorporation were tested: **enzymic** fractionation, acid-base hydrolysis, and phenol-chloroform extn. Because

labeled macromol. fractions are generally defined as DNA, RNA, and **proteins**, incorporation of tritiated thymidine, uridine, and leucine were used to preferentially **label** DNA, RNA, and **proteins**, resp. Each fractionation method yielded different apparent **macromol.** distributions of the same **radiolabeled substrates**. **Enzymic** digestions of the fractions obtained by acid-base hydrolysis and phenol-chloroform extn. showed these 2 procedures are inadequate to est. bacterial DNA **labeling** in the ecosystem. By using the **enzymic** procedure at different sites, DNA **labeling** appeared to represent a nearly const. proportion of the **labeled macromols.** (20.1%) over a wide range of incorporation rates.

ST bacteria DNA formation detn tritiated thymidine; biopolymer extn bacteria DNA formation detn; RNA **protein** bacterioplankton Ebrie Lagoon

IT Solvolysis
(acid-base, of biopolymers, evaluation of, bacteria DNA formation detn. in relation to)

IT **Protein** formation
(detn. of, in bacteria with tritiated leucine, biopolymer extn. procedures in relation to)

IT Deoxyribonucleic acid formation
(detn. of, in bacteria with tritiated thymidine, biopolymer extn. procedures in relation to)

IT Ribonucleic acid formation
(detn. of, in bacteria with tritiated uridine, biopolymer extn. procedures in relation to)

IT Biopolymers
RL: ANST (Analytical study)
(extn. of, of bacteria, DNA formation detn. in relation to)

IT **Enzymes**
RL: ANST (Analytical study)
(in biopolymer fractionation, DNA formation detn. by thymidine incorporation in relation to)

IT Extraction
(with phenol-chloroform, evaluation of, estn. of bacteria DNA formation from incorporation of tritiated thymidine in relation to)

IT Extraction
(with phenol-chloroform, evaluation of, estn. of bacterial DNA formation from incorporation of tritiated thymidine in relation to)

IT Plankton
(bacterio-, productivity estn. of, by **labeled** DNA and RNA and **protein** formation, biopolymers fractionation in relation to)

IT 50-89-5, Thymidine, biological studies
RL: BIOL (Biological study)
(in DNA synthesis detn. in bacteria, biopolymer extn. procedures in relation to)

IT 58-96-8, Uridine
RL: ANST (Analytical study)
(in RNA synthesis detn. in bacteria, biopolymer extn. procedures in relation to)

IT 61-90-5, L-Leucine, biological studies
RL: BIOL (Biological study)
(in **protein** synthesis detn. in bacteria, biopolymer extn. procedures in relation to)

L80 ANSWER 28 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1990:474281** HCAPLUS
DN **113:74281**
TI Cascade **enzyme** immunoassay method and kit using multiple binding reactions
IN Mapes, James P.; Hoke, Randal A.
PA Becton, Dickinson and Co., USA
SO U.S., 16 pp.

CODEN: USXXAM
DT Patent
LA English
IC ICM G01N033-53
ICS G01N033-543; G01N033-537; G01N033-532
NCL 435007000
CC **9-10** (Biochemical Methods)
FAN.CNT 1

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 4904583	A	19900227	US 1987-53896	19870526

AB The title method includes contacting under binding conditions a liq. suspected of contg. an analyte, an immobilized antianalyte, and an **enzyme**-conjugated tracer. A bound fraction is sepd. from the liq. and incubated in a 2nd liq. with a masked ligand. The masked ligand is converted by the **enzyme** on the bound fraction to give free ligand which binds to an antiligand. A signal system, e.g. a signal **enzyme** and **substrate** or a **label**-load vesicle and vesicle lysing agent, is added to generate a signal used to detect or det. the analyte in the liq. A kit for performing the method of the invention is described. The assay method of the invention provides a sensitivity increase of .gtoreq.100-fold in the detn. of analytes present in biol. fluids in very low concns. Cascade assays for detn. of adenovirus and of herpes simplex virus (2 different assay configurations) are described.
ST cascade **enzyme** immunoassay multiple binding reaction; adenovirus detn cascade **enzyme** immunoassay; herpes simplex virus detection cascade EIA
IT Complement
RL: ANST (Analytical study)
(as vesicle lysing agent, in cascade **enzyme** immunoassay)
IT Antibodies
Antigens
Haptens
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, cascade **enzyme** immunoassay for)
IT Dyes
(in cascade **enzyme** immunoassay)
IT **Double** bond
(isomerable, ligand masked with, in cascade **enzyme** immunoassay)
IT Acyl groups
Peptides, uses and miscellaneous
Phosphates, uses and miscellaneous
RL: USES (Uses)
(ligand masked with, in cascade **enzyme** immunoassay)
IT Pharmaceuticals
Coenzymes
Hormones
Ligands
Steroids, uses and miscellaneous
Vitamins
RL: ANST (Analytical study)
(masked, in cascade **enzyme** immunoassay)
IT Virus, animal
(adeno-, detn. of, cascade **enzyme** immunoassay for)
IT Functional groups
(carbamoyl, ligand masked with, in cascade **enzyme** immunoassay)
IT Immunochemical analysis
(**enzyme** immunoassay, cascade, with masked ligand)
IT Immunochemical analysis
(**fluorescence enzyme** immunoassay, cascade, with

masked ligand)
IT **Proteins**, specific or class
RL: ANST (Analytical study)
(fusion products, of virus, as vesicle lysing agent, in cascade **enzyme** immunoassay)
IT Antibodies
RL: ANST (Analytical study)
(monoclonal, to adenovirus, conjugates with esterase, in cascade **enzyme** immunoassay for adenovirus)
IT Membranes
(vesicular, signal **enzyme** encapsulated in, in cascade **enzyme** immunoassay)
IT 2321-07-5, **Fluorescein**
RL: ANST (Analytical study)
(antibodies to, in cascade **enzyme** immunoassay for adenovirus detn.)
IT 9001-92-7, Protease 9013-05-2, Phosphatase 9013-19-8, Isomerase 9013-79-0, Esterase 9027-41-2, Hydrolase 9074-90-2, Cyclase
RL: ANST (Analytical study)
(as unmasking **enzyme**, in cascade **enzyme** immunoassay)
IT 37231-28-0, Melittin
RL: ANST (Analytical study)
(as vesicle lysing agent, in cascade **enzyme** immunoassay)
IT 2321-07-5D, **Fluorescein**, peroxidase conjugates 7298-65-9, **Fluorescein** dibutyrate 9003-99-0D, Peroxidase, **fluorescein** conjugates 9013-79-0D, Esterase, conjugates with monoclonal antibody to adenovirus
RL: ANST (Analytical study)
(in cascade **enzyme** immunoassay for adenovirus detn.)
IT 39324-30-6, Pepstatin 51-48-9, Thyroxine, uses and miscellaneous 58-85-5, Biotin 59-30-3, uses and miscellaneous 60-92-4 68-19-9, Vitamin B12 83-88-5, Riboflavin, uses and miscellaneous
RL: ANST (Analytical study)
(masked, in cascade **enzyme** immunoassay)

L80 ANSWER 29 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1989:91021** HCAPLUS
DN **110:91021**
TI Acyl-acyl-carrier **protein**: lysomonogalactosyldiacylglycerol acyltransferase from the cyanobacterium Anabaena variabilis
AU Chen, Hsiu Hua; Wickrema, Amittha; Jaworski, Jan G.
CS Dep. Chem., Miami Univ., Oxford, OH, USA
SO Biochim. Biophys. Acta (1988), 963(3), 493-500
CODEN: BBACAQ; ISSN: 0006-3002
DT Journal
LA English
CC 7-2 (**Enzymes**)
AB Membranes isolated from the A. variabilis and washed free of sol. endogenous constituents **catalyzed** the direct **transfer** of the acyl group from acyl-acyl-carrier **protein** to an endogenous lysomonogalactosyldiacylglycerol to form monogalactosyldiacylglycerol. Other glycolipids including monoglucosyldiacylglycerol and digalactosyldiacylglycerol were not products of this reaction. The **transfer** was not dependent on any added cofactors. Palmitoyl-, stearoyl- and oleoyl-acyl-carrier **protein** were approx. equally active as **substrates**. **Transfer** was exclusively to the C-1 of the glycerol, as demonstrated by hydrolysis of all incorporated acyl groups by the lipase from Rhizopus arrhizus delamar. In addn. to the 1 galactolipid, a 2nd minor product was free **fatty acid**, presumably due to hydrolysis of the acyl-acyl-carrier **protein**. Using a **double-labeled** [14C]acyl-[14C]acyl-carrier

protein, the reaction was demonstrated to be a **transfer** reaction, rather than a simple exchange of acyl groups with endogenous monogalactosyldiacylglycerol. The **transfer** reaction mechanism was also confirmed by increasing activity with the addn. of liposomes of lysomonogalactosyldiacylglycerol.

ST lysomonogalactosyldiacylglycerol acyltransferase acyl carrier **protein** Anabaena

IT Anabaena variabilis
(lysomonogalactosyldiacylglycerol acyltransferase of membrane of, acyl-acyl-carrier **protein** reaction kinetics with and monogalactosyldiacylglycerol biosynthesis in relation to)

IT Michaelis constant
(of lysomonogalactosyldiacylglycerol acyltransferase, of Anabaena variabilis membrane, for acyl-acyl-carrier **proteins**)

IT **Proteins**, specific or class
RL: RCT (Reactant)
(ACP (acyl-carrier **protein**), S-oleoyl, reaction of, with lysomonogalactosyldiacylglycerol acyltransferase of cyanobacteria, kinetics of)

IT **Proteins**, specific or class
RL: RCT (Reactant)
(ACP (acyl-carrier **protein**), S-palmitoyl, reaction of, with lysomonogalactosyldiacylglycerol acyltransferase of cyanobacteria, kinetics of)

IT **Proteins**, specific or class
RL: RCT (Reactant)
(ACP (acyl-carrier **protein**), S-stearoyl, reaction of, with lysomonogalactosyldiacylglycerol acyltransferase of cyanobacteria, kinetics of)

IT Glycerides, biological studies
RL: FORM (Formation, nonpreparative)
(di-, monogalactosyl, formation of, lysomonogalactosyldiacylglycerol acyltransferase of cyanobacteria in)

IT 119129-68-9
RL: BIOL (Biological study)
(of Anabaena variabilis membrane, acyl-acyl-carrier **protein** reaction kinetics with, monogalactosyldiacylglycerol biosynthesis in relation to)

L80 ANSWER 30 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1989:33813** HCAPLUS
DN **110:33813**
TI Automated system for routine economical analysis of intratissular steroid metabolism
AU Le Goff, J. M.; Martin, P. M.
CS Lab. Cancerol. Exp., Fac. Med. Nord, Marseille, 13326, Fr.
SO J. Med. Nucl. Biophys. (1988), 12(1), 39-47
CODEN: JMNBEJ
DT Journal
LA French
CC 2-1 (Mammalian Hormones)
AB An original anal. system developed for routine studies of steroid metab. in the prostate (5.alpha. reductase, 17.beta. dehydrogenase), which can be easily adapted for the study of any **enzymic** reaction where **radiolabeled substrates** are used is described. This system was assembled from simple com. available components and combines the advantages of highly reproducible HPLC sepn. and the counting and calcn. rapidity of an in-line **radiodetector** (FLO/ONE). The advantages of this method are: (1) a rapid and precise calcn. of the conversion rates of an **enzymic** reaction without requiring costly **double label** techniques; (2) limitation of nonspecific **radiodecay** of the tracers used (suppression of nonspecific controls); (3) reduced consumption of **scintillation** liq. in the

assay. Total automation leads to uninterrupted operation (24 h a day) with reduced tech. assistance and rapidity of anal. (6 samples counted and calcd. hourly). The minimal operating costs of the system and the advantages it presents in comparison to a conventional procedure of TLC sepn. with **dual labeling** and nonspecific controls, are discussed on the basis of the comparative results of 97 dosages carried out by the 2 methods.

ST steroid metab prostate detn; HPLC dihydrotestosterone estrone prostate; reductase prostate detn; dehydrogenase prostate detn

IT Prostate gland
(dehydrogenase and reductase detn. in, by HPLC)

IT Androgens
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(metab. of, by prostate gland, HPLC method for detn. of)

IT 9028-62-0 9036-43-5, 5.alpha.-Reductase
RL: ANT (Analyte); ANST (Analytical study)
(detn. of, in prostate gland, HPLC method for)

IT 53-16-7, Estrone, biological studies 58-22-0, Testosterone 521-18-6, Dihydrotestosterone
RL: BPR (Biological process); BIOL (Biological study); PROC (Process)
(metab. of, by prostate gland, HPLC method for detn. of)

L80 ANSWER 31 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1986:2878** HCAPLUS
DN **104:2878**
TI **Luminescence** as an analytical tool
AU Sanville, C.
CS Packard Instrum. Co., USA
SO Am. Biotechnol. Lab. (1985), 3(5), 48, 50-2
CODEN: ABLAEY
DT Journal; General Review
LA English
CC **9-0** (**Biochemical Methods**)
Section cross-reference(s): 15, 80

AB A review with 11 refs. about the use of **luminescence** methods for the detection and quantitation of biol. compds., e.g., **substrates** or **enzymes** that can be coupled to prodn. or consumption of ATP, NAD(P)H, FMN, or H2O2. Bacteria nos. and cell viability can be detd. rapidly, and phagocytic cell function can be assayed easily and objectively by using **luminescence**. In addn., **luminescent tags** can be used for **luminescence** immunoassays.

ST review **luminescence** analysis biochem; immunoassay **luminescence** review

IT Spectrochemical analysis
(**bioluminescence**, biochem. applications of)

IT Spectrochemical analysis
(**luminescence**, biochem. applications of)

IT Immunochemical analysis
(**luminescence** immunoassay)

L80 ANSWER 32 OF 32 HCAPLUS COPYRIGHT 2002 ACS
AN **1982:541224** HCAPLUS
DN **97:141224**
TI Enhancement methods in the localization of **proteins** following electrophoresis or isoelectric focusing
AU Johnson, Andrew Myron
CS Sch. Med., Univ. North Carolina, Chapel Hill, NC, 27514, USA
SO Electrophor. '81 [Eighty-One], Proc. Int. Conf., 3rd (1981), 127-32. Editor(s): Allen, Robert Chadbourne; Arnaud, Philippe. Publisher: de Gruyter, Berlin, Fed. Rep. Ger.
CODEN: 48KUAG
DT Conference

LA English
CC **9-7 (Biochemical Methods)**
AB Techniques used for the localization and identification of specific **proteins** or groups of **proteins** are discussed, including immunol. reactions, ligand binding, **enzyme-substrate** reactions, and use of **labels** such as **radioisotopes**, **fluorescent tags**, and **enzymes**.
ST **protein** detection electrophoresis isoelec focusing
IT **Proteins**
RL: ANST (Analytical study)
(electrophoresis and isoelec. focusing of, localization methods in)
IT Electrophoresis and Ionophoresis
Isoelectric focusing
(of **proteins**, localization methods in)

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FILE 'WPIX' ENTERED AT 08:04:23 ON 12 SEP 2002
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FILE LAST UPDATED: 10 SEP 2002 <20020910/UP>
MOST RECENT DERWENT UPDATE 200258 <200258/DW>
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L106 ANSWER 1 OF 1 WPIX (C) 2002 THOMSON DERWENT
AN **1987-136082** [09] WPIX
DNN **N1987-101867** DNC **C1987-056707**
TI Device for enzyme-labelled binding assay - has indicator zone including reagent capable of immobilising enzyme-labelled reagent.
DC B04 D16 J04 S03
IN BAKER, T S; FLEMING, I M; PERRY, M J
PA (CLLT) CELLTECH LTD; (BAKE-I) BAKER T S; (BOOT) BOOTS-CELLTECH DIAGNOSTICS; (CLLT) CELLTECH THERAPEUTICS LTD
CYC 19
PI WO 8702774 A 19870507 (198719)* EN 41p
W: AU DK GB JP KR US
EP 225054 A 19870610 (198723) EN
R: AT BE CH DE ES FR GB GR IT LI LU NL SE
AU 8665926 A 19870519 (198732)
GB 2191578 A 19871216 (198750)
DK 8703339 A 19870831 (198809)

JP 63501595 W 19880616 (198830)
GB 2191578 B 19891101 (198944)
CA 1289070 C 19910917 (199145)
EP 225054 B1 19930127 (199304) EN 17p G01N033-52
R: AT BE CH DE ES FR GB GR IT LI LU NL SE
DE 3687634 G 19930311 (199311) G01N033-52
ES 2053445 T3 19940801 (199432) G01N033-52
JP 07018878 B2 19950306 (199514) 12p G01N033-543
US 5500350 A 19960319 (199617) 12p G01N033-53
US 5604110 A 19970218 (199713) 12p G01N033-53
KR 9609765 B1 19960724 (199922) G01N033-543

ADT WO 8702774 A WO 1986-GB670 19861030; EP 225054 A EP 1986-308450 19861030; GB 2191578 A GB 1986-13842 19861030; JP 63501595 W JP 1986-505778 19861030; EP 225054 B1 EP 1986-308450 19861030; DE 3687634 G DE 1986-3687634 19861030, EP 1986-308450 19861030; ES 2053445 T3 EP 1986-308450 19861030; JP 07018878 B2 JP 1986-505778 19861030, WO 1986-GB670 19861030; US 5500350 A Cont of US 1987-80565 19870629, Cont of US 1989-347725 19890505, Cont of US 1991-702128 19910516, Cont of US 1993-83329 19930629, US 1994-235261 19940429; US 5604110 A Cont of WO 1986-GB670 19861030, Cont of US 1987-80565 19870629, Cont of US 1989-347725 19890505, Cont of US 1991-702128 19910516, Cont of US 1993-83329 19930629, Cont of US 1994-235261 19940429, US 1995-488080 19950607; KR 9609765 B1 WO 1986-GB670 19861030, KR 1987-700565 19870630

FDT DE 3687634 G Based on EP 225054; ES 2053445 T3 Based on EP 225054; JP 07018878 B2 Based on JP 63501595, Based on WO 8702774; US 5604110 A Cont of US 5500350

PRAI GB 1985-26741 19851030; GB 1987-13842 19851024

REP CA 1183080; EP 30684; EP 88636; FR 2514511; FR 2514636; GB 2029011; US 4110079; US 4361537; EP 186799

IC ICM G01N033-52; G01N033-53; G01N033-543
ICS C12M001-34; C12Q001-28; G01N033-558; G01N033-74

AB WO 8702774 A UPAB: 19930922
A device for performing an enzyme-labelled binding assay comprises an absorbent material (AM) and a developing soln. (DS), where the AM is provided with reagent zones including an indicator reagent zone and is capable of transporting the DS by capillary action sequentially through each reagent zone and where the indicator reagent zone includes a reagent capable, directly or indirectly, of immobilising an enzyme-labelled reagent in an amt. dependent upon the assay result, characterised in that DS includes a signal-producing substrate for the enzyme. Pref. the enzyme is horseradish peroxidase and DS contains tetramethylbenzidine and H2O2.

USE/ADVANTAGE - The device facilitates the use of binding assays in the home with the minimum of manipulative steps. Any enzyme-labelled reagent which is not immobilised remains ahead of the substrate and therefore colour smearing does not occur. In the absence of immobilised enzyme-labelled reagent, no signal is generated in the immobilising region of the absorbent material at any stage in the assay, not even transiently as the solvent front passes through the immobilising region. The assay is partic. applicable to a dual analyte assay for determining the relative concns. of pregnanediol-3-glucuronide (PD3G) and oestrone-3-glucuronide (E13G).

7/9

FS CPI EPI

FA AB; DCN

MC CPI: B01-A01; B01-D01; B04-B02C2; B04-B04C5; B05-C08; B10-B01A; B11-C07A4; B11-C07B1; B12-K04A6; D05-A01A; D05-A01B1; D05-A01C1; D05-H09; J04-B01
EPI: S03-E14H4

ABEQ EP 225054 B UPAB: 19930922
A device for performing an enzyme-labelled binding assay, the device comprising an absorbent material (1) in the form of an elongate strip with transverse reagent zones and a developing solution, wherein the absorbent material is provided with a plurality of reagent zones including an

indicator reagent zone (6), and is capable of transporting the developing solution by capillary action sequentially through each reagent zone, and wherein the indicator reagent zone (6) includes a reagent capable, directly or indirectly, of immobilising an enzyme-labelled reagent in an amount dependent upon the assay result, wherein the developing solution (3) includes a signal-producing substrate for the enzyme, characterised in that the signal-producing substrate is a single colour-producing compound or a compound acting as a cofactor with a further compound or compounds to produce a coloured signal in the presence of enzyme, and the colour-producing compound and any further compound or compounds are included in the developing solution, wherein the signal producing substrate, in use, first generates a signal at, or upstream of, the indicator reagent zone (6) where the enzyme-labelled reagent has been immobilised.

1/9

ABEQ GB 2191578 B UPAB: 19930922

A device for performing an enzyme-labelled binding assay, the device comprising an absorbent material and a developing solution, wherein the absorbent material is provided with a plurality of reagent zones including an indicator reagent zone, and is capable of transporting the developing solution by capillary action sequentially through each reagent zone, and wherein the indicator reagent zone includes a reagent capable, directly or indirectly, of immobilising an enzyme-labelled reagent in an amount dependent upon the assay result, characterised in that the developing solution includes a signal-producing substrate for the enzyme.

ABEQ US 5500350 A UPAB: 19960428

A test system for performing a binding assay for determining the presence or absence of an analyte in a sample, comprising:

a) an absorbent material in the form of an elongate strip having a sample application zone, upstream of a plurality of transverse reagent zones,

wherein an enzyme-labelled reagent zone includes an enzyme-labelled species, comprising either an enzyme-labelled analyte or an enzyme-labelled reagent that binds to said analyte, such that in use, said enzyme-labelled species is caused to migrate through the strip by passage of a developing solution through the strip, and

wherein an indicator reagent zone includes an immobilized reagent that directly or indirectly binds, and thereby immobilizes, said enzyme-labelled species in an amount dependent on the quantity of said analyte present in said sample; and

b) a developing solution,

wherein said developing solution comprises a signal-producing substrate for the enzyme which is a single color-producing compound or a compound acting as a cofactor with a further compound or compounds to produce a signal in the presence of enzyme, wherein any of said further compound or compounds are present in the developing solution,

wherein said developing solution is initially in contact only with that portion of said absorbent material upstream from said indicator zone but in which ultimately, by capillary action, sequentially contacts all reagent zones of said absorbent material, and

wherein said signal-producing substrate is transported by the developing solution slower than said enzyme-labelled species either by addition to said absorbent material at least one compound that increases the attractive interaction between said absorbent material and said substrate relative to the attractive interaction between said absorbent material and said enzyme-labelled species or by provision of a substrate binding reagent zone which binds said substrate at a location upstream from said enzyme-labelled reagent zone, such that, in use, the substrate is prevented from passing through said binding reagent zone until said binding reagent zone is substantially saturated.

Dwg.0/6

ABEQ US 5604110 A UPAB: 19970326

A test system for performing a binding assay for determining the presence

or absence of analyte in a sample or the relative concentrations of two analytes in a sample, comprises:

a) an absorbent material in the form of an elongate strip having a sample application zone upstream of a plurality of transverse reagent zones, wherein said reagent zones of said absorbent material comprise, at least an enzyme-labelled reagent zone which includes an enzyme-labelled species comprising an enzyme-labelled analyte or an enzyme-labelled reagent that binds to said analyte, such that in use, said enzyme-labelled species is caused to migrate through the strip by passage of a developing solution through the strip, and an indicator reagent zone which includes an immobilized reagent that, directly or indirectly, binds and thereby immobilizes said enzyme-labelled species in an amount dependent on the quantity of said analyte present in said sample; and

b) a developing solution, wherein said developing solution comprises a signal-producing substrate for the enzyme that generates signal only in or downstream from said indicator reagent zone, wherein the signal-producing substrate is a single colour-producing compound or a compound acting as a cofactor with a further compound or compounds to produce a signal in the presence of enzyme, wherein said any further compound or compounds are present in the developing solution;

wherein said developing solution is initially in contact only with that portion of said absorbent material upstream from said indicator zone but in which ultimately, by capillary action, sequentially contacts all reagent zones of said absorbent material;

wherein said enzyme-labelled species is mobilized in said developing solution but does not react with said signal producing substrate to produce colour except at or downstream form said indicator reagent zone; and wherein said signal-producing substrate is transported by the developing solution slower than, said enzyme-labelled species.

Dwg.0/9

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     (FILE 'HOME' ENTERED AT 06:17:14 ON 12 SEP 2002)
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     FILE 'REGISTRY' ENTERED AT 06:17:31 ON 12 SEP 2002
               E PROTEIN KINASE/CN
L1             5 S E3
               E PROTEIN PHOSPHATASE/CN
L2             4 S E3
L3             9 S L1,L2
L4         17023 S PROTEIN(L)(KINASE OR PHOSPHATASE)
L5             9 S L4 AND L3
L6         17014 S L4 NOT L5

     FILE 'HCAPLUS' ENTERED AT 06:19:31 ON 12 SEP 2002
               E DODSON H/AU
L7             2 S E3
               E MARKS J/AU
L8           184 S E3,E17,E22,E31
L9             1 S E62
               E MCQUADE T/AU
L10           21 S E3-E8
               E MC QUADE T/AU
               E SANTORO M/AU
L11           96 S E3,E5,E37-E39
               E SANTORO N/AU
L12           34 S E3,E8,E9
L13       592196 S ENZYM?/SC,SX,CW
L14       927125 S ENZYM?
L15        39937 S L5
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L16       78090 S L6
L17      152840 S PROTEIN(L)(KINASE OR PHOSPHATASE)
L18      162348 S PROTEIN(L)(?KINASE? OR ?PHOSPHATASE?)
L19      168222 S ?PROTEIN?(L)(?KINASE? OR ?PHOSPHATASE?)
L20          44 S L7-L12 AND L13-L19
L21           0 S L7 AND L8-L12
L22           0 S L8,L9 AND L10-L12
L23           0 S L10 AND L11,L12
L24           0 S L11 AND L12
                E US2001-682517/AP,PRN
L25         646 S (WARNER OR LAMBERT)/PA,CS AND L13-L19
L26          18 S L25 AND 9/SC,SX
                E ENZYMES/CT
L27      130216 S E3
L28     1223065 S L13-L19,L27
L29       72927 S L28 AND (BIOCHEM?(L)METHOD?)/SC,SX
L30      189241 S L28 AND SUBSTRATE
L31        9641 S L29 AND L30
L32        1215 S L30 AND DUAL?
L33          45 S L31 AND L32
                SEL DN AN L33 10 11 15 18 20 25
L34           6 S L33 AND E1-E18
L35          17 S L30 AND DUAL SUBSTRATE(S)ENZYM?
                SEL DN AN 2 7
L36           2 S L35 AND E19-E24
L37          23 S L30 AND DUAL SUBSTRATE(L)ENZYM? NOT L34-L36
L38          58 S L30 AND DUAL SUBSTRATE
L39          41 S L37,L38 NOT L33-L36
                SEL DN AN 18 19
L40           2 S L39 AND E25-E30
L41        1113 S L32 NOT L33-L40
L42           2 S L41 AND ?SCINTIL?
                SEL DN AN 1
L43           1 S E31-E33 AND L42
L44         102 S L41 AND ?LABEL?
                SEL DN AN 50
L45           1 S L44 AND E34-E36
L46        6225 S L30 AND DOUBL?
L47        6215 S L46 NOT L33-L40,L42-L45
L48         758 S L47 AND (?SCINTIL? OR ?LABEL?)
L49        1011 S L41 NOT L42-L45
L50          77 S L48,L49 AND FATTY ACID
                SEL DN AN 10 20 47
L51           3 S E37-E45 AND L50
L52         168 S L31,L46 AND TAG?
L53          88 S L52 NOT L33-L49,L42-L45,L50,L51
                SEL DN AN 1 4 15 20 43 69 76 82 85
L54           9 S L53 AND E46-E70
L55        2782 S L31,L46 AND (RADIO? OR RADIA? OR ?LUMINES? OR ?CHROMO? OR ?CO
L56        1402 S L55 AND 9/SC
L57          20 S L56 AND (MACROMOL? OR ACYL CARRIER (L) PROTEIN)
                SEL DN AN 7 12 14 15
L58           4 S L57 AND E71-E82
L59           1 S L31,L46 AND ?FLUOROESC?
L60        1317 S L31,L46 AND ?FLUORESC?
L61          32 S L60 AND MACROMOL?
L62          23 S L61 NOT L57
L63          28 S L34,L36,L40,L43,L45,L51,L54,L58
L64          28 S L63 AND L7-L63
L65          28 S L64 AND (?LABEL? OR ?FLUORESC? OR ?LUMINES? OR ?CHROMO? OR ?S
L66       24184 S L30 AND PROTEIN#/SC,SX,CW
L67        4355 S L30 AND PEPTIDE#/SC,SX,CW
L68       26073 S L66,L67
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L69        5131 S L68 AND (?LABEL? OR ?FLUORESC? OR ?LUMINES? OR ?CHROMO? OR ?S
L70          57 S L69 AND DUAL?
L71         221 S L69 AND DOUBL?
L72         235 S L70,L71 NOT L33-L40,L42-L45,L50-L54,L57-L59,L61-L65
L73         530 S L68 AND TAG?
L74         456 S L73 NOT L33-L40,L42-L45,L50-L54,L57-L59,L61-L65
L75         689 S L72,L74
L76           9 S L75 AND 9/SX
L77          23 S L75 AND 9/SC
L78          32 S L76,L77
                SEL DN AN 2 3 23 26
L79           4 S L78 AND E83-E94
L80          32 S L65,L79

     FILE 'HCAPLUS' ENTERED AT 07:44:12 ON 12 SEP 2002

     FILE 'BIOSIS' ENTERED AT 07:44:40 ON 12 SEP 2002
                E DODSON H/AU
L81             2 S E3,E6
                E MARKS J/AU
L82           381 S E3,E24,E27,E36
L83             3 S E64
                E MCQUADE T/AU
L84          25 S E3-E6
                E SANTORO N/AU
L85          91 S E3,E4,E10-E12
                E SANTOTO M/AU
                E SANTORO M/AU
L86         114 S E3,E7,E35-E36
L87         616 S L81-L86
L88       50408 S L5
L89      176675 S L17-L19
L90      346415 S ?PHOSPHATASE? OR ?KINASE?
L91     1724704 S 1080#/CC
L92          84 S L87 AND L88-L91
L93         339 S L88-L90 AND DUAL?(L)SUBSTRATE
L94          39 S L93 AND 1005#/CC
L95         285 S L93 AND 1006#/CC
L96         124 S L93 AND 105##/CC
L97         290 S L94-L96
L98           9 S L97 AND 0650#/CC
L99         281 S L97 NOT L98
L100         83 S L99 AND (DUAL? OR SUBSTRATE)/TI
L101          1 S L100 NOT AB/FA
L102         11 S DUAL SUBSTRATE AND L93

     FILE 'WPIX' ENTERED AT 07:58:55 ON 12 SEP 2002
L103         16 S DUAL? SUBSTRATE
L104       1328 S DUAL?(S)SUBSTRATE
L105         17 S L103,L104 AND (C12N OR C12P OR C12Q)/IC,ICM,ICS
                SEL DN AN 17 L105
L106          1 S E1-E3
L107         29 S G01N/IC,ICM,ICS AND L104
L108         21 S L107 NOT L105

     FILE 'WPIX' ENTERED AT 08:04:23 ON 12 SEP 2002
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